Issue No. 14

October 1957

AIR COOLED NEWS

PUBLICATION OF

THE H. H. FRANKLIN CLUB

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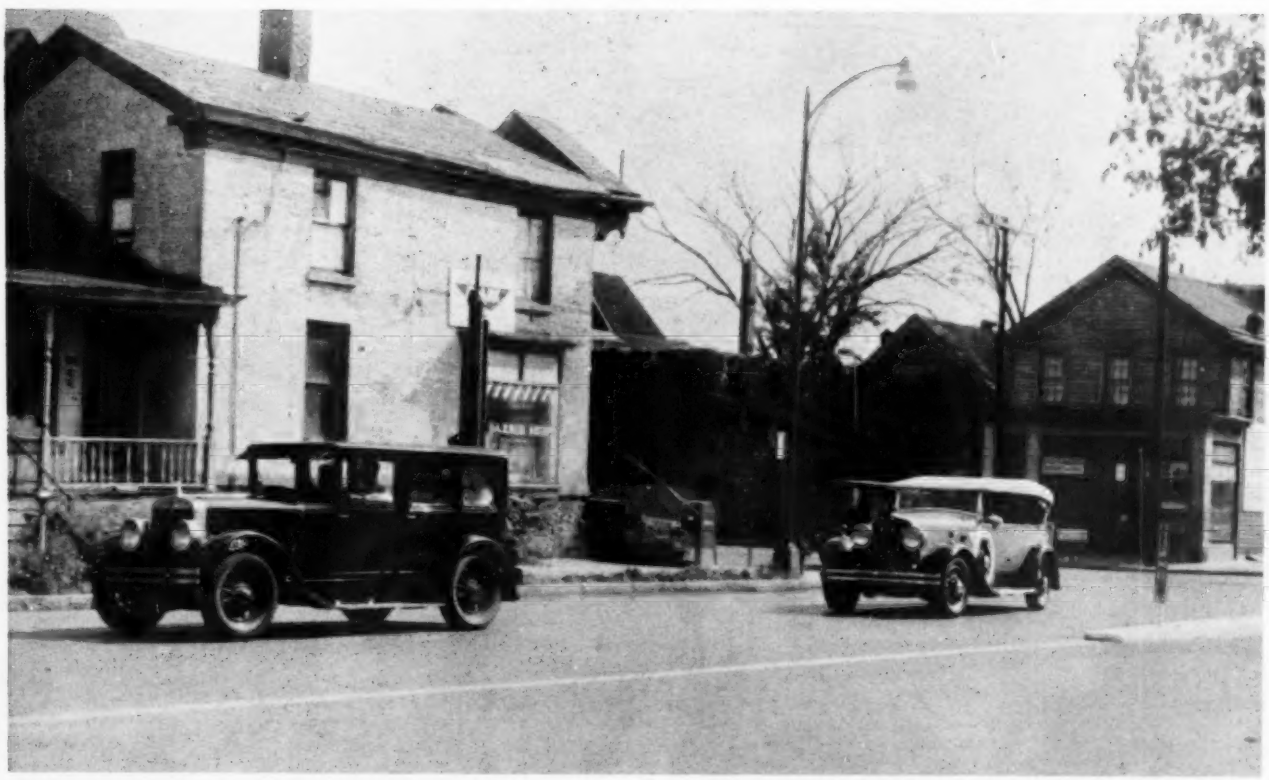

AIR COOLED NEWS

PUBLICATION OF

THE H. H. FRANKLIN CLUB

VOL. V, No. 2 — OCTOBER 1957

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Once, in our very early Army days, we were guilty of some sort of military sin, probably one of omission. Our Top Sergeant, who was not exactly the milquetoast type, stopped squarely in front of us in ranks and delivered this little gem, "Amick, you're just G-- D--- triflin' an' no account and besides that you're no D--- good!!"

This issue probably breaks all records for ACN and most other club magazines, too, for being fantastically late. We had planned this one for the first of September while the Trek was still fresh news. However, this time it cannot be blamed on a "triflin' editor." As most of you have learned by now through Chape's special newsletter, we really do have a sound alibi for once. For the benefit of any "customer" who did not see that letter, we were nursing a bum eye for two months and our medic would not permit the reading or writing necessary to get the magazine to the printers.

We do not care for the ugly contraptions that clutter the highways today. We freely admit that they have come a long way in reliability, that is after you have spent plenty of time in correcting the slovenly workmanship with which most of them leave their factory. Reliable, yes, but there is much reliability packed into a good shovel but mighty little pride of ownership. Pride seems to be lost, the honest pride of a job well done now seems to be replaced by a sort of pride in the ability to "get by", whatever that actually means. For a generation or so Packard built beautiful vehicles, now to see that once honored script brings on the shudders. Amusingly enough many a person who seems to admire the ridiculous, non functional assemblage of useless fins, quadruplicate taillights, tinsel trimmed shapelessness that is current now will be reduced to tears of laughter when they view photographs of the Victorian homes of their grandfathers. There is much in common between these two with their useless excrescences but their is one point in which they have nothing in common. Our grandfather's house, say what you will about his taste, was honestly and sturdily built, no one can accuse these cars of that.

What we were really thinking about was the return of air cooling. Most of our clan would consider that a most desirable happening. Probably the above comments were brought on by our own feeling that the makers of cars have little real interest in engineering excellence but are moved only by gimmicks that they believe will induce sales, the type of "improvements" that cause people to buy new ones year after year just to "keep up", However many do not share this uncomplimentary view of the auto makers. Quite a few believe that air cooling may again be seen in this country. The sales of the VW and other European aircoolers indicate a trend to some. We believed that the turbine was on its way, that at least is not water cooled. Discussing this recently with a couple of engineers we learn that it is much farther away than we imagined, economy of fuel being one of the hurdles. Apparently there is interest in air cooling again, seemingly in decidedly unconventional engines as we now know them. A great advance in the old two cycle principle seems to be in the wood, this coupled with air cooling, might offer some real advances. We have read a study of a projected air cooler by a well known Detroit engineer, whether this will ever see the light we do not know and possibly neither does this engineer. At least it is concrete evidence of independent thinking.

Perhaps someday engineers will triumph over copywriters and we may again be able to buy an American air cooler, but we are none too sanguine about it. Even if this happy circumstance came about the stylists would still be in the saddle and we wouldn't care very much one way or the other. Pessimist? Heck, yes!

No, we have never "had to meet a payroll" in the automobile business, neither are we much of a huckster. We are not trying to tell those people how to make money out of automobiles, they seem to have done well without our guidance. We are just one of those many people who "know what we like" and are disgruntled because the product available grows farther and farther away from "what we like" each year. Maybe an air cooled engine under the hood (there should now be a better name for that cavernous pit up front) would partly make amends for the crimes of the stylists.

Anyway the horrible looking beasties run!

We are publishing in this issue the story of the FRAYER-MILLER written by member Fredrick Moskovics supplemented by a more detailed description of the various cars he mentions.

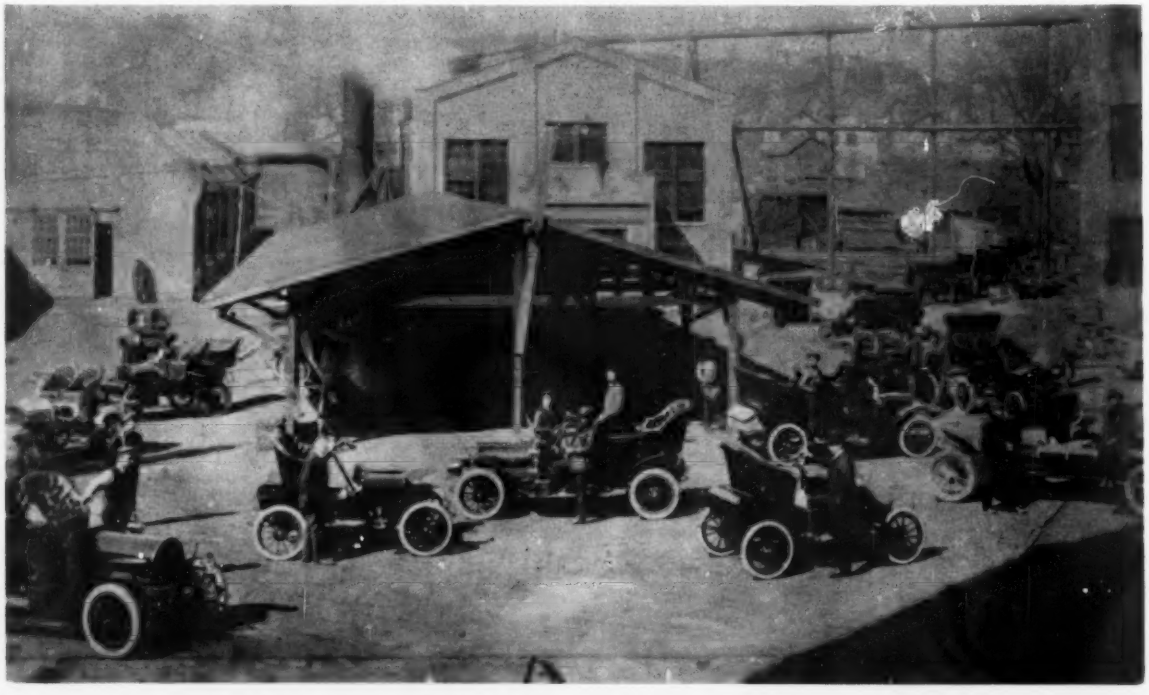
Fredrick E. Moskovicks, now an engineer with the A. O. Smith Corporation, has had a most distinguished career in the industry. Subsequent to his connection with the Oscar Lear Company he became a Vice-President of Franklin in charge of sales. While there we understand, he also did some engineering work under Mr. Wilkinson. He then became Vice-President and the General Manager of the Marmon Company, again he was closely associated with Howard Marmon in engineering the famous "34". Member Moskovics is without doubt best known for his connection with Stutz. He was President and directly in charge of engineering and is generally granted credit for the marvelous success of the Stutz.

A half forgotten story concerns the very substantial bet Mr. Moskovics made on a challenge race between the Stutz Blackhawk and the Hispano-Suiza. Last minute trouble eliminated the Blackhawk but rather than take an easy out Mr. Moskovics put in a standard Stutz and took a sportsmanlike but thorough trimming.

We have done an awful lot of griping on this page since we started in the job of putting out the magazine. We jumped on everyone because they did not send us pictures or because they did send us pictures that were atrocious, they are doing better now, more pictures and less of the useless ones. We have sounded off about those folks who do not pay their dues on time and cause us plenty of unnecessary work, the members are getting better about that too, this year's "delinquents" are at an all time low . . . for us. Anyway, that is really Stan Wilkinson's headache now, though the poor old editor still has to "meet his payroll" and consequently at least helps the Treasurer with his worrying. We have been highly uncomplimentary about those members who do not send us a change of address and leave it up to us to try to run them down. We feel no change of heart toward this last named group, they remain our top ranking undesirables!

Putting out the magazine is work, lots of work but there are very bright sides to that work. We are so often slightly surprised at the extent of the cooperation we do get, especially when it comes from without our own club. The cover advertisement this issue is a good example. A member showed us this sketch in a financial journal, we wrote the oil company requesting their permission to use it. Their reply was prompt and generous, of course we may use it, no mention of requiring any specific credits. . . We once wanted to reproduce a cartoon in ACN, we received permission provided we printed a certain form of credit, seventy three words, and printed them directly following the caption of the picture! . . . their most courteous response was followed shortly by several beautifully printed examples of other scenes they had used, on large fine stock . . . sans any advertising. One of these now hangs in the living room. We have been particularly pleased with the fine help we have received, from members and non members alike, in working up the series of stories on other air cooled cars. The Ford Museum sent us fine pictures of the Chevrolet engine and in record time for use with Austin Clark's story, Clark in turn dug up for us the fine photographs of the touring car seen in Fred Moscovics' current story. The first of these articles, the British Robinson, was the result of prompt and most courteous help by Miss Elizabeth Nagle, the Secretary of the VCC and Mr. Stock, the car's owner. We knew of a certain Franklin in Los Angeles that sounded interesting. Fred Hayward, the very busy editor of the H. C. C. Gazette ran up there personally to take the pictures for us! The late Jerry Duryea gave us help and advice as well as needed food for the ego, compliments on what we were doing. The publisher of the BULB HORN, who happens to be a member, has given us aid and has been most kind in his comments. Probably no one has been more helpful to us than Miss Maude Payne of the Detroit Library. Miss Payne is not a "dues paying Party Member", but no listed member could have been more willing to assist us, we know that most of the other club magazines would say the same.

Yes, it is not all just work, there has been much pleasure and it has brought to us many wonderful new acquaintances. We do not know just what has brought this on, probably tne wonderful Fourth Trek, on which we did not do one iota of work but just enjoyed the "buggy ride". But don't build on this, by next issue we will be back in form.



The Test Yard in 1905. The round hoods are Model 1905 Model Ds. Note the wicker hamper on one of the Ds. —Courtesy Onondaga Historical Association

Air-Cooling vs. Water-Cooling in Its Relation to National Defense

By Captain George H. Rarey, in charge U. S. Army Tank School, Ft. Meade, Maryland

In a race staged this past summer by U. S. Army officers at Ft. Meade, Maryland between a Franklin-powered tank and a fleet of standard water-cooled tanks, the Franklin entry thoroughly outclassed and out-performed all ten of the water-cooled tanks in speed and hill-climbing ability. The picture shows the air-cooled tank far in the lead.

October 1930

The author, the late Colonel George H. Rarey, then Captain, was also coauthor of The Fighting Tanks Since 1916, a textbook on tank development and usage. This work was dedicated to Colonel H. L. Cooper, at one time Commandant of the Tank School. Many years ago this editor served under Colonel Cooper.

During the experimentation and development described in Colonel Rarey's story member Carl Doman was the Franklin engineer in the field and he contributed much to the project. Mr. Doman and Colonel Rarey remained friends for years until the death of the Colonel. . AHA

IT may be thought that the type of engine used in military motor vehicles is one of the minor matters among the host of projects necessary for adequate national defense, but a brief study of the question will show that in a motorized age such as this, where motor vehicles have almost entirely supplanted horse and mule drawn transportation, the motor vehicle has already become a matter of great importance in military service.

Considering the present tendency in all armies toward mechanization and motorization, it is considered logical to assume that the degree of our success or failure in the next war *may depend* upon the intelligence and initiative shown and the effort made by the military service to hasten the development of efficient motor vehicles for military purposes.

While there are many other important factors to be considered in the design of motor vehicles, no gas propelled vehicle is any better than its engine and *no engine is better than its cooling system.* It is with this feature of the engine that we are now concerned and the part it will play in the successful completion of military missions, whether these missions involve the use of the various types of army trucks, tractors, passenger cars, armored cars or tanks.

Air-Cooling As Related to National Defense

(Continued from Page One)

We need a more efficient cooling system for the armored car and the tank than is supplied by the water system, and although we can use the water-cooling system in trucks, tractors, and passenger cars in a country well supplied with water, each of these vehicles would be materially improved for our purposes, if they were equipped with a cooling system that uses no water or other liquid which can leak, freeze, or steam.

Water-Cooling Gives Trouble

An officer who had been responsible for the operation of a large pool of motor transportation in France during the war, was asked the following question: "What feature or unit of your trucks and other vehicles gave the most trouble?" Without a moment's hesitation he replied: "The water-cooling systems". Being asked for details, he stated that most of the difficulties were caused by steaming radiators in hot weather, frozen radiators and pumps in cold weather, accidents to radiators causing leaks, leaking water pumps, leaking hose connections, and the replenishment of the cooling medium from unclean pools of water along the roadside.

An excellent study of cooling system troubles, published in *Motor* recently, listed fifty engine troubles arising from various causes which may result in the failure of the cooling system. A check of this list showed nineteen items, or 38% of the total, that were caused by the use of water as a cooling medium. These troubles can positively be eliminated by the use of air-cooling, and when any of the troubles incidental to the operation of motor vehicles are eliminated, motor transportation becomes proportionately more efficient.

It was this possibility of increasing the efficiency of these vehicles,

Capt. G. H. Rarey, U. S. Army

that influenced the writer to make a study of the Franklin air-cooling methods. Being concerned with the development of the tank, a motor vehicle which in war is given a mission that cannot be accomplished by any other agency without great loss of life, the U.S. Army Tank Service is interested in any method or means that will increase the effectiveness of each and every unit in this unusual vehicle.

Tank Must Be Dependable

In order to realize the nature of the work that the army tank engine must perform, it must be remembered that the tank is not an ordinary motor vehicle. It is a *fighting vehicle*, it has great weight, it must cross rough terrain, go through swamps, brush, wire obstacles, mud and sand, climb steep grades, crush trees, cross small streams, brick walls, railroad tracks, logs, rocks, shell holes, ditches and trenches, and it must be capable of moving at a good speed up light grades and on level ground. When traversing enemy territory many unexpected obstacles will be encountered by the fighting tank, and the engine with which this vehicle is equipped must frequently exert its full power to supply the speed or the climbing ability required by the crew. Hence the tank engine must be dependable under all conditions.

A Difficult Problem

From a study of tank development and employment during the war, and from observation and experience in tank operation, maintenance and experimentation through a period of several years since the war, the writer has become convinced that the installation of a water-cooled engine in this vehicle presents many serious cooling difficulties. The tank engine operates under adverse conditions. It is entirely enclosed in armor and receives no advantage or assistance in cooling from the rush of air over it (induced by the movement of the vehicle) as does the engine in the automobile, truck, or airplane. The hot air in the engine room cannot be forced out as easily as in the case of other motor vehicles. In view of these unusual conditions, no motor vehicle engine presents a more difficult cooling problem.

Up to the present time most of the tanks have used the forced water-cooling system. A few have used the thermo-syphon water system. One of the main difficulties with the water system, when installed in a tank, is the inability to control the temperature of the water after it reaches the boiling point. The accumulation of steam in the system gives trouble by blowing out gaskets and damaging other weak points, in addition to causing a rapid loss of the water through boiling. In a test conducted by the Tank Board during the past summer of a light tank

Franklin-Powered Tank Makes History at Ft. Meade

Explaining the Pictures

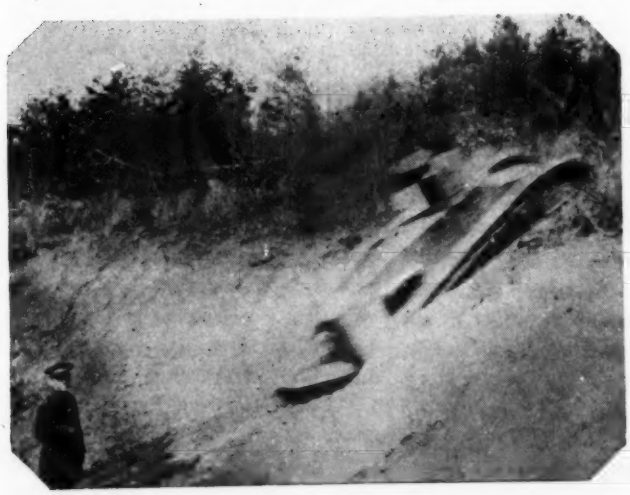
ABOVE—*The Franklin-powered standard U.S. Army tank which thoroughly out-performed a fleet of ten water-cooled tanks at Ft. Meade, Md. in the early summer of 1930. Captain George H. Rarey, who conducted the tests, is at right alongside Series 14 Franklin car; Sergeant Anthony Kieta, who drove the tank, at left.*

UPPER LEFT—*Franklin tank fording small creek during test.*

LEFT—*Fighting every barrier! Good sized trees fall like toothpicks before the on-rush of the Franklin-powered tank. Picture does not show grade just climbed, approximately 25%.*

LOWER LEFT—*All in a day's work to the Franklin tank, which here is mounting a 40% grade over loose soil.*

LOWER RIGHT—*The Franklin tank ready to "break over" the top of huge pile of earth.*



equipped with the standard water-cooled engine when the outside temperature was 95 degrees in the shade, it was found that after about two hours operation one-half of the water had boiled away. The air-cooled tank was operated under the same conditions and at the same time for a period of eight hours; this was the second eight hour run for this tank.

Some tank designers have so arranged the water system that the hot air from the engine is forced between the radiator tubes in an attempt to cool the hot water therein. Others arrange to use cool air from the outside of the tank by placing a protected opening in each side of the tank and drawing the cool air in at one side, forcing it directly through the radiator and then out of the tank through the other opening. Of the two methods, the latter is the most efficient. However, these openings in the sides of the tank are dangerous because it is difficult to give them adequate protection without reducing the flow of air needed for cooling.

England Turns to Air-Cooling

Of the heavy tanks produced by England during the war, the first four used the first method, i.e., the cooling air was taken from the inside of the vehicle, but starting with the Mark V, their heavy tanks all used the direct cool air method for cooling the water in the radiator. Even this improvement could not have been entirely satisfactory, as it is noted that they are now installing air-cooled engines in their new medium and heavy tanks in an effort to get away from the cooling troubles incidental to the use of radiators, hose connections, water pumps, water pipes, and water.

Taking our own light tank as an example of the difficulties encountered with water cooling in this type of motor vehicle, the following list shows the potential chances for the vehicle to fail, as a result of the failure of the cooling system:

1. Decrease of the cooling medium on account of leaks.

(a) Leaks through the water pump grease cups, of which there are two.

(b) Leaks through the packing gland nut.

(c) Leaks due to the lack of water pump shaft packing.

(d) Leaks due to the loss of the two grease cups, through vibration.

(e) Leaks due to the accumulation of steam and its escape through the overflow.

(f) Leaks due to the blowing out of a gasket in the water pipe flange.

(g) Leaks through either of the four hose connections due to the loosening of either one of the two clamps on each connection.

(h) Leaks due to the radiator being punctured by a bullet, after coming through the armor plate.

(i) Leaks through any one of the 1324 radiator tubes, due to the tubes being loosened, or due to the tubes being damaged by freezing.

2. Lack of circulation of the cooling medium.

(a) Due to shearing of parts of the pump drive.

(b) Due to broken impeller blades.

(c) Due to the buckling of the hose connections.

(d) Due to ice forming in the cooling system.

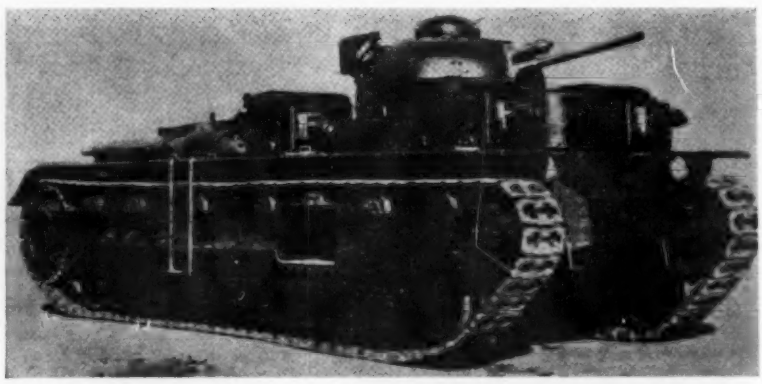
(e) Due to foreign matter being put into the system with unclean water.

3. Lack of cooling air for the radiator.

(a) Due to a broken fan belt.

(b) Due to a slipping fan belt.

Heavy British Air-Cooled Tank



The picture shows one of the latest types of British "heavies", an air-cooled Vickers Independent tank, weighing thirty tons and having a high speed of twenty miles per hour. Note the light artillery gun in revolving turret.

British authorities state that the use of an air-cooled engine was absolutely essential in this heavy tank, inasmuch as a radiator which could properly cool an engine of the size required would have been prohibitive both from the standpoint of space required and the weight of the radiator and water. The engine used is the most powerful of its type in existence and requires a small auxiliary engine, also air-cooled, to start it.

(c) Due to the failure of the cooling air to strike all radiator tubes.

• • •

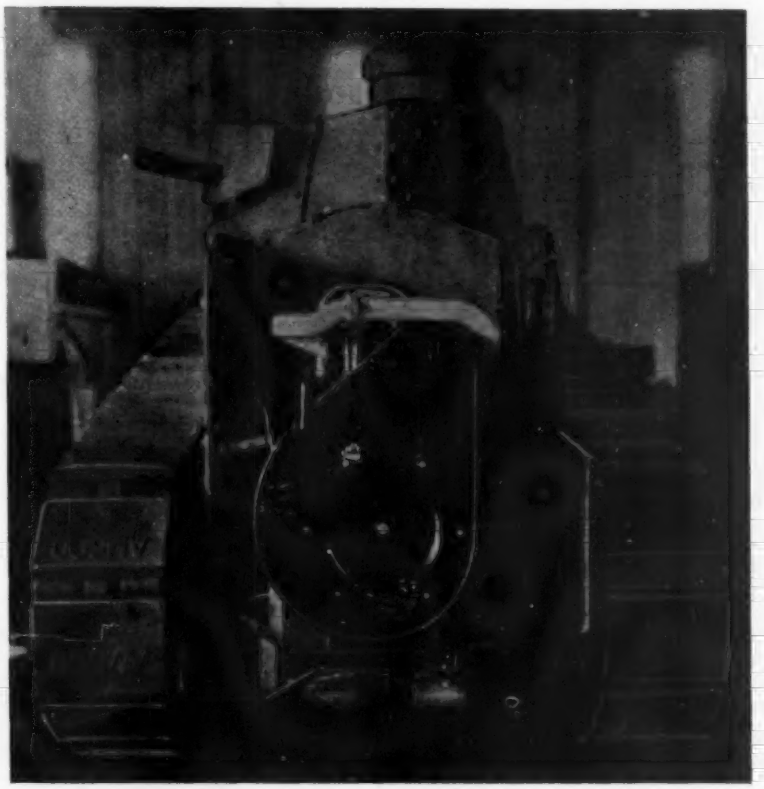
The tank engine may be ever so good but if the cooling system fails to function efficiently, the tank will stop, or its speed will be so reduced that it will be inefficent as a fighting vehicle.

Water-Cooling Not Adequate

Another example of an inadequate cooling system is found in the standard Heavy tank, the Mark VIII, which is powered with the Liberty 12, V type, water-cooled, airplane engine. There are 37 hose connections in this cooling system, each of which is held in place by two hose clamps. The cooling water passes through many pipes, in addition to the restricted passages in the water jackets to reach the point around the cylinder heads where the cooling action is most needed. A large, horizontally mounted, 606 radiator is placed in an air duct through which the cooling air passes. The water is passed through the radiator twice in one circulation, that is, it passes through the tubes in the upper half of the radiator to the rear end, and then back through the tubes in the lower half to the forward end of the radiator on its way back to the engine.

A 24" sirocco fan is used to circulate the cooling air. This fan delivers 11,000 cubic feet of air per minute at an engine speed of 1400 R.P.M. It is driven by a silent chain from the engine shaft to a bevel gear set, through the bevel gears and by means of pulleys and a leather belt to the fan shaft. The fan is mounted close to one side of the engine. It draws hot air from the engine and the red hot exhaust manifolds directly into the fan housing, hence the air intended for cooling purposes has absorbed a great amount of heat before it reaches the radiator.

Series 14 Franklin Engine in Standard U.S.A. 7-Ton Tank



The standard 7-ton U.S. Army tank powered by a Series 14 Franklin engine, pictured above, was one of the highlights at the First Annual Air-Cooled Power Show held in Syracuse on October 27, 1930.

Water Supply Difficult

Neither of these cooling systems is efficient for hot weather operation. Another objection to the use of water-cooling systems in tanks is the usual lack of suitable water on the battlefield for engine cooling purposes. This condition would necessitate the hauling of the cooling water from a distance and water would thus become an item of supply for the fighting tanks. Each light tank cooling system requires nine gallons and each of our heavy tanks requires thirty-nine gallons for cooling purposes. With continuous operation these systems may lose a large per cent. of this supply in which case the amount lost must be replaced or the vehicle must stop. In an arid country the use of water-cooled tanks and other vehicles might place a restriction upon the employment of these vehicles, especially if they were operating in isolated localities. To provide water for a great number of engines would be a supply problem of some magnitude in certain localities.

The same objection applies alike

(Continued from Page Five)

to any of the chemical liquids recently developed for engine cooling. The problems incidental to the supply of an army in the field should not be further increased by adding new items such as water or chemicals for engine cooling purposes.

Air Always Available

On the other hand, the cooling medium used by the air-cooled engine is always present and available. It only needs to be put into circulation to accomplish the cooling job efficiently and it requires no radiator, pumps, pipes, or hose connections. There is nothing to haul, fill, drain, freeze, boil, rust, leak or lubricate in this modern cooling system, and no fan belt to slip or break, as the cooling fan is fastened directly to the crankshaft of the engine.

Advices from abroad indicate that the British Tank Corps is making material progress in the adaptation and use of air-cooled engines in their tanks and tractors. During the past few years they have installed this type of engine in the following vehicles:

The Medium Tank, weighing 16 tons, having a high speed on roads of about 16 m.p.h., powered by the Armstrong-Siddeley, 8 Cyl. V type, air-cooled engine which supplies 90 H.P. at something over 2000 R.P.M. This vehicle has been tested for a number of years, both in England and India.

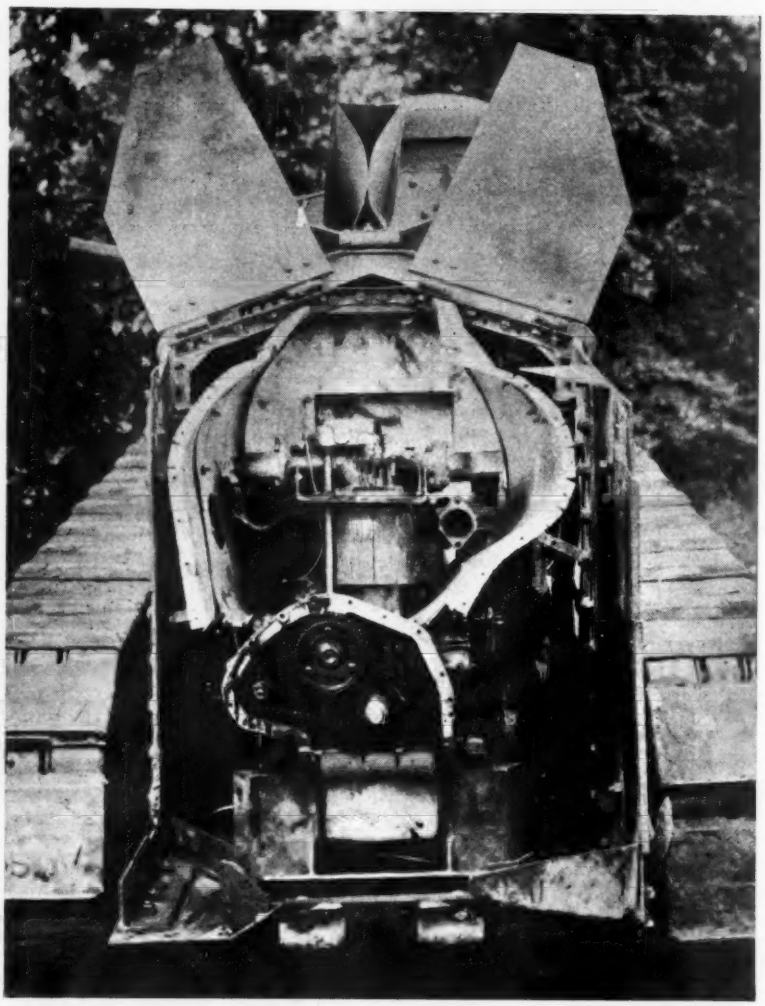
The Dragon Mark II Artillery Tractor, weight 9 tons, high speed 16 m.p.h., powered with the above mentioned air-cooled engine.

The Dragon Mark III Artillery Tractor, weight and speed about the same as the Mark II, powered with an air-cooled engine. This tractor has been adopted for medium artillery. In addition to towing the gun, these tractors carry 11 men and 128 rounds of 18 Pounder ammunition.

The 18 Pounder Self-Propelled Gun Mount, weight about 12 tons, having a high speed of 15 m.p.h., powered with the air-cooled engine used in the Medium tank. This mount carries one 18 Pounder gun, 6 men, and almost two tons of ammunition.

The Heavy Vickers Independent Tank weighing about 30 tons, having a high speed of 20 m.p.h., powered by an air-cooled engine. The British account of this tank includes the following statement: "Apart from the advantages of air-cooled engines already mentioned, it was absolutely essential to have such an engine in this tank, for the simple reason that a radiator to cool an engine of the size required would have been prohibitive both from the standpoint of

Series 135 Franklin Engine in Standard U.S. A. 7-Ton Tank



It was this type of motor that enabled Franklin air-cooling to win such a notable victory over water-cooled tanks in the series of U.S. Army tests at Ft. Meade.

space required and the weight of the radiator and water. The engine used is the most powerful of its type in existence and requires a small auxiliary engine, also air-cooled, to start it."

The Pavesi Tractor, a four wheel drive machine with extraordinary articulation. This tractor is used by the Italian and Spanish armies. It is being equipped with the Armstrong-Siddeley air-cooled engine for use in England.

A Successful Conclusion

The first steps to initiate a test of an air-cooled engine in a U.S. Army tank were taken in 1927, and this project, which had for its main purpose the determination of the possibility of successfully cooling an engine of this type, when installed in one of our 7 ton tanks, was brought to a successful conclusion during the past summer at Fort Meade, Md.

This test was made possible through the generosity of Mr. H. H. Franklin who furnished without cost to the government, one of the series 13 engines for the test. The initial installation of the engine in the tank was made by the Engineering Department of the Holabird Quartermaster Depot.

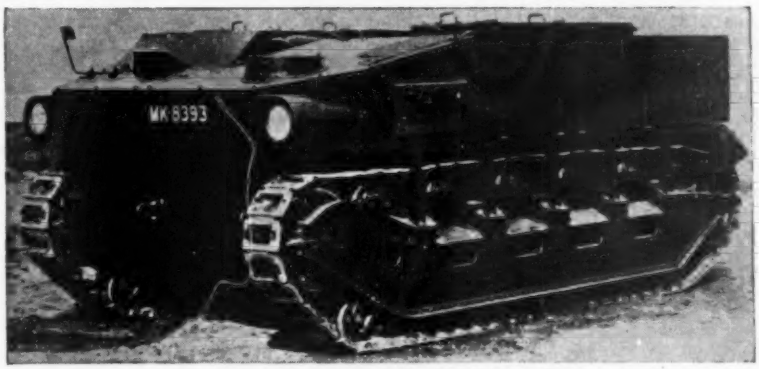
As was to be expected, some difficulties were encountered and had to be overcome in the adaptation of this 67 H.P. automobile engine to an army tank which had an engine room and a power train designed to take a 44 H.P. engine. However, all difficulties so far presented by this novel installation appear to have been overcome, and it has been definitely demonstrated that the air-cooled engine can be successfully cooled when used as a power plant in our light tank and that it is superior to the water-cooled engine for hot weather operation. It will be tested for cold weather operation during the coming winter. No unsurmountable difficulties are anticipated in this test and of one thing we are assured, there will be no water in this tank to drain, leak, fill, or freeze.

As a result of the showing made with this engine, the War Department has directed that six additional light tanks be equipped with the Franklin engines and turned over to the Armored Force for a field test.

For Armored Cars, Too

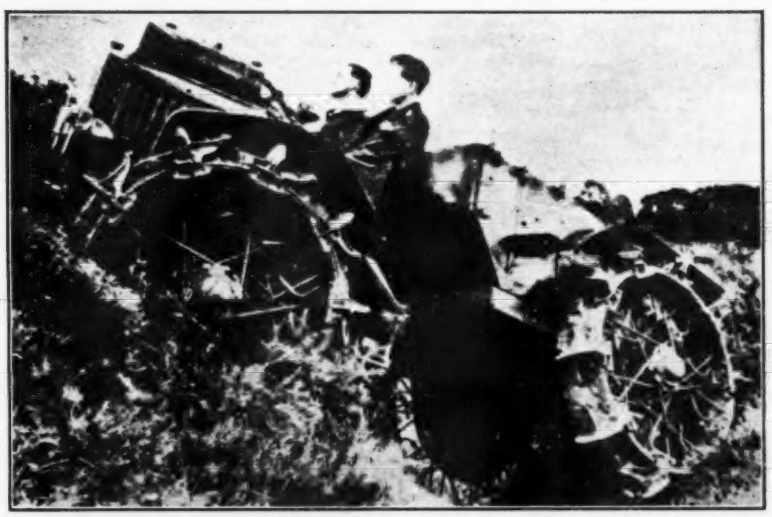
Since installing the air-cooled engine in the light tank, the Camp Holabird Engineering Department has secured and installed these engines in six armored cars and two supply trucks for the Cavalry and one cargo truck for the Infantry. Additional installations in various types of vehicles for several branches of the service are being considered.

Air-Cooled British Artillery Tractor



The picture shows the Dragon Mark III Artillery Tractor, weight approximately nine tons. Speed about 16 miles per hour. In addition to towing artillery, these air-cooled tractors—which have been adopted by the British Government for hauling medium artillery—carry eleven men and 128 rounds of Pounder ammunition.

Italian Air-Cooled Military Tractor



The Pavesi air-cooled tractor shown in picture is a four wheel drive machine used by the Italian and Spanish armies and has remarkable maneuverability.

Tanks Today

After reading Captain Rarey's book and several of his papers I became much interested in the tank engine of later years. I remembered some Franklin, or Franklin influenced, engines in small Japanese tanks and discussed the matter to some extent with Colonel Randolph Millholland who had used Mark IV tanks in WWII in Europe, powered, so says Ed Marks, with Lycoming or Wright radial air cooled engines. Colonel Millholland, by the way, is descended from two generations of Barrel Hoods! Appeals to Carl Doman for data produced an embarrassing richness that is way beyond the limits of ACN, this also brought a mass of fine material from Carl F. Bachle, Vice-President in Charge of Research for Continental Aviation and Engineering Corporation. About all I can do here is use a few small extracts from all this to show that air cooling, sparked by Franklin is still alive in the military world. Mr. Bachle says, in the scholarly fifty page study he sent us, "During World War II, the air cooled engine was used to a rapidly increasing extent by the ground forces of both parties. The German Army operated air cooled gasoline and diesel engines in cars, trucks, tractors and tanks, and the U. S. Army in tanks only. During this period, the outstanding reliability of the air cooling system under the most severe conditions in the arctic, as well as in the desert, was proven most conclusively."

In late 1928 Mr. Franklin agreed to prepare a Series 135 engine for use in a Renault tank. Mr. Doman was selected to contact the engineers at Camp Holabird and the tank school at Fort Meade in Maryland. He had a very short time to prepare the engine. So the Government shipped in a Buda 4-cylinder engine with dual oil pumps. The Franklin oiling system was redesigned to incorporate two oil pumps and two oil sumps so the engine would receive oil regardless of position. This required extra gears, shafts and bearings. This allowed tolerances to build up in one direction causing serious trouble to develop. John Burns went to Holabird with the engine to supervise installation. He ran into vapor lock problems which were first thought to be due to excessive cylinder temperatures. Burns disagreed and by working out a method of controlling temperatures of the fuel proved his point as the vapor lock difficulty disappeared.

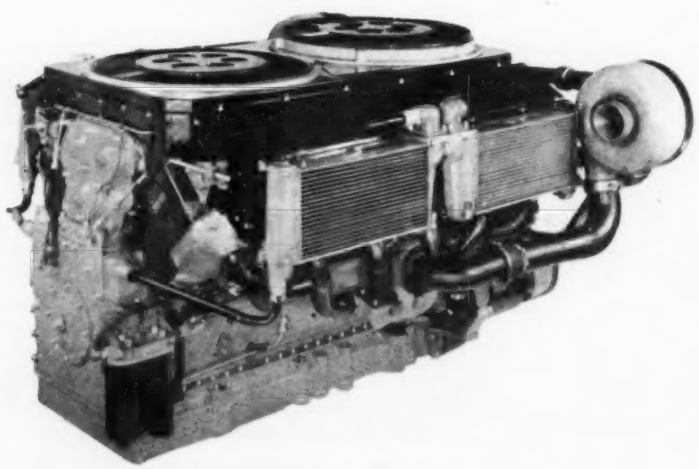
During 1929 the side draft Series 14 engine was developed. Franklin received an order for six of these engines for tank installation. They were installed at Fort Meade under supervision of a Franklin mechanic. As in all military projects there were those who would have dropped the whole program but Captain Rarey pushed it through and there is no doubt that Rarey's persistence pointed the way. Today it is recognized that air cooling is the only way to power a tank, until some other prime mover takes over from the piston engine.

The Chief of Ordnance set up a tank engine committee in 1943 with K. T. Keller, President of Chrysler, as Chairman to draw up basic specifications for a series of air cooled engines for tanks. Serving with Mr. Keller were Charles Chayne, Vice-President of Engineering, General Motors; Arthur Rosen, Chief Research Engineer of Caterpillar; Carl Bachle, Continental Aviation; Albert Gregory, Chief Engineer of Fairchild Aircraft; John McCauley of Pratt & Whitney; Robert Insley, also of Continental and Carl Doman. Today's tank engines are a result of the work done by that committee.

Of that period Carl Doman writes: "At that time the development work was offered to Aircooled Motors, but management, tragically, felt it would be best not to get into it since it was not aircraft engines. However, Pattern Makers, Inc., of which I am President, has participated in the development of pattern equipment which we believe has contributed greatly to the performance of modern tank engines. Cylinder heads with extremely close finning have resulted in unusual cooling ability and high specific outputs."

The currently standard tank engines of 1957 are those manufactured by Continental, air cooled, of course. Again our own Carl Doman shows in the picture. The major castings for these engines are made by Oberdorfer Foundries in Syracuse. This outfit was formed many years ago and expanded greatly due to aluminum castings for Franklin and also Aircooled Motors, Inc. Kenneth Digney, President of Oberdorfer along with Deforest Smith, head of Aircooled's Pattern Shop and Carl Doman founded Pattern Makers, Inc., back in 1947. This organization makes the patterns for producing the aluminum and magnesium castings for the Continental engine.

Pattern Makers are responsible for developing shell moulding, a process resulting in materially increased cooling surface on cylinder heads for their air cooled engines. This has resulted in great increases in engine output due to better cooling. This all ties into the fundamentals of direct air cooling developed by the Franklin Automobile Company. I think it can be fairly said that Mr. Franklin's gift of an engine, way back in 1928, fathered the modern military tank. —AHA



CONTINENTAL 750 HP 12-CYLINDER VEE ENGINE

Trek IV

The Fourth Trek was favored with wonderful weather, though for awhile on Saturday morning it looked as if last year's cloudburst would repeat. This year we figured we had it all sewed up, George Boyer was official ACN photographer and Lillian Mickle was to be the ACN reporter as well as Secretary of the Meeting. Had hardly unpacked when I received a wire from Mrs. Mickle that they would not be able to make it. so once again I am trying to report the Trek from memory and almost no notes.

We had the same Committee as last year with the addition of Richard Wells. I think that Dick, being quite young. was going to be stuck with lots of "leg" work. You remember the ill fate that seemed to follow Committee Chairmen for several years? Well, it struck again, Wells showed up on crutches, he didn't say too much about the reason, maybe he was just playing it smart.

By Thursday evening quite a gathering had already reported but as there was not a quorum present there was no Advisors Meeting that night, instead everyone gathered in one of the Parlors for an unofficial gabfest. The Trek planning was truly excellent but there was a sort of booboo on this first day. next year I think a very definite arrangement must be made so that newcomers are gathered in and not left to wander around until registration next day. This definitely occurred this year, we old timers did not recognize them and they did not know us.

Friday morning registration started with Vi Hosler and Ken Barton officiating at the table. Ken showed a quite fashionable summer tan, beach or bottle we never found out. System was as last year, you were handed a complete kit when you walked in. once more the badges were quite legible. Of course as each one registered in he,or she stuck around to gossip so in no time you had to elbow your way around the room. the decible level was within limits of tolerance but that's about all! Later in the day Ken told me that actual registrations were 127. a nice little gain over 1956. Cars. I believe. were about the same as last year but probably at a still higher standard of restoration. Before we knew it it was time for luncheon and we drifted off to find a seat at some Franklin table downstairs. The Annual Meeting was set for 2:30 but the usual business of wandering around the garage made it pretty hard to round them up so the meeting was a bit late in starting. Maybe next year we should appoint a Sergeant at Arms. a good man would be Bob Ryan from Staten Island. who came for his second Trek, Bob is big enough to terrorize even the toughest Trekker!

The Meeting was called to a facsimile of order by President Condit. Miss Josephine Lewinsohn of Brooklyn was Secretary, whether she was drafted or volunteered I did not learn. Incidentally the Lewinsohn family was there in force. Mrs. Richard Lewisohn, better known to us as Sonbie. the Misses Josephine and Helen and their Franklin. an original family car that has never been serviced by anyone but Johnny Lucchessi, they saw to it that Johnny. his Boss and his own lovely car were there. Mrs. Lucchesi told us that some one GAVE her a wonderful special boattail Franklin. the luck of the Irish! Minutes of last year's meeting were read and passed after some comment as to what had been accomplished on a few of the recommendations. At this time it was announced that Tom Hubbard had willed his V-12. F.O.B. Syracuse. to the proposed museum collection Karl Feather renewed his offer of a car or two. No actual action was taken on this project. but it is a good idea that warrants more study. The Treasurer had not yet arrived so Hank Courten read the financial report, it was quite encouraging. especially to the Editor who was biting his nails over the next two ACNs. they are in the bag! Back issues of ACN and emblem sales have contributed quite well to the general fund. The Editor was asked for a report on membership (That's me), I noticed a new card, complete with check, on Ken's desk so announced that that one brought us exactly to last year's total with four months still to go, at that moment the Treasurer walked in and held up four fingers, so we were over. Later Stan told me that we had gathered in eight or ten during the Trek.

In the absence of the Nominations Committee Chairman the President announced the result of the balloting. The new Advisors, to take office on next January 1st for a two year term. are Henry C. Courten, New York; Athol Odell, Illinois; Fredrick J. Pommer, Connecticut and Albert L. Walker, Wisconsin. The voting was far from heavy but was pretty close.

Committeeman and Mrs. Wells
Pretty smart, huh?

The Meeting was then thrown open for general discussion but nothing of any importance was brought forward. Our Trek is rapidly taking its place among the older recognized events in time and place and there seemed to be no inclination to make any change, in which viewpoint I heartily concur. After adjournment most folks dashed over to the garage to see who and what had arrived, probably a lot of the women folks made a survey of the shopping facilities, though I heard no disastrous reports on this and recall no member borrowing for his hotel bill.

That evening, after dawdling too long at dinner, we went, somewhat belatedly over to the Onondaga Historical Association for the evening entertainment. Dick Wright gave a masterly prepared talk based on the court records of the trial in the case of the New York Automobile Company versus H. H. Franklin et al. There was quite a turnout and fortunately not as hot as last year, beer, cokes, crackers and more of the wonderful local cheese were served. I meant to fill my pockets with cheese but forgot it. There was also a nice display of Franklin items including some personal mementoes of Mr. Franklin, among which was a tiny hand printing press on which he printed small cards for the neighbors, probably had some influence on his later career as he became a newspaper published in Coxsackie. Another nice collection of Franklin literature had just been donated by the Lucchesis. Several items from this were borrowed for use of ACN. Last year Tom Hubbard, Dick Wright and I met the milkman on our way back to the hotel. but I'm older now and left at the reasonable hour of about midnight. A nightcap with Fenton. and to bed.

Nelson Reynolds was high Brass this year, Chief Judge and also Parade Marshal, complete with a shoulder slung loud speaker (which he never learned how to use 'till just before the Banquet!). The line up for the Brewerton run was by ages and I think Nelson actually read Serial Numbers to get it right. Once more it was lead by the Wilkinsons, Stan, being one of those big and hardy souls sneered at the cold and took off in shirt sleeves, along the way he stopped while Eddie bought him a sweatshirt. Would probably have been a toss up with John Tyson's cross engine but the latter car was apparently not in top running form for John carried it on the trailer at the end of the line. We once set an all time record for parades by clearing 30 cars from the garage within five minutes after the takeoff time. We were not exactly on time this year but I have never seen a better managed run, the Syracuse Police, who have always done a wonderful job, outdid even themselves this year. In the 14 mile run to the Island we never once came to a full stop and the running average was comfortable. I never saw so many police as we went along. it was made more impressive by dozens of Military Police along the line. These birds were actually there to move through a large military unit but they immediately cooperated with the local police and aided wonderfully and impressively. You would have thought Ike was in the middle car!

CLOSE FORMATION ON THE ISLAND HOP
The Charles R. Smiths of Cabin John lead the last Echelon. That blonde head belongs to Virginia Thompson. Sorry only picture we have!

PRE FLIGHT CHECK
Judging from Frank Ober's smile, tough old General N. P. Reynolds must have passed his '32 Airman.

All Photos—Geo

A PERFECT LANDING ON DENMAN ISLAND
Just about hidden in this '31 are Sophie, Josephine and Helen Lewinsohn, Grace Carris and Dorothy Amick.

ABOUT READY FOR TAKE OFF
Dave Doman's '32 warmed up and ready to find his place in formation

s—George Boyer

Trek IV cont.

Once again we rolled onto the lovely island home of the Charles Denmans of Brewerton. Space will not permit a worthwhile description of this grand layout. The Denmans are, of course, HHFC members as well as being old car collectors of note, their collection includes a number of Franklins as well as outstanding cars of many makes. Mr. Denman is also a well recognized archeologist. He had a surprise for us, saying that he would show us some antiques that were antiques. These proved to be the oldest couple who were ever present at a Trek, a man who was about 2400 years old and a woman of 3950 summers! For those who were never there, the Denman home is built on an island in Lake Oneida that was an Indian burial ground for centuries. said to be one of the richest archeological sites in the country. What a home for a man like Charley Denman! These particular relics had been uncovered only a week or so before and had been left undisturbed for our benefit. A somewhat more modern touch that appealed to many was a nickle piano that was kept blaring away in the garage, I really liked that one, reminded me of the Honky Tonk "Pianner" at the Wilkinsons.

We traipsed over to the village for luncheon and then wandered back in groups to the Island for another hour or so of just relaxing with the cars and the folks under the magnificent island trees. Started home around three as individuals, I rode in the clover leaf of the Carl Fosters. Carl, for a Pennsylvanian, really knows his way around Syracuse. By the way, he has in mind a most intriguing Franklin project, but I won't steal his thunder here.

I forgot to mention that ACN was represented by its own Press Car, a VW convertible driven by Doc George Boyer with Fenton Meredith acting as photographer. this pair ducked in and out of traffic with professional abandon, looked important as all get out!

We got back to the hotel in plenty of time for a soak, tub I mean, before the cocktail party and dinner. Coming out of the elevator at the tenth floor, the first person I saw was poor old Reynolds still trying to get a squawk out of that loudspeaker. They were out of Manhattans and I had to drink a Martini, Ugh!!! Here I met two more of our four lovely women Honorary Members, Miss Stella Tague and Miss Gladys Bliss. We had spent most of the day with the incomparable Mrs. Carris, to our great disappointment the fourth, Mrs. John Wilkinson, did not attend. For awhile we just gossiped as usual until about everyone had turned up. I put on my editor's cap and pussyfooted around trying to put the touch on everyone I saw for pictures or stuff for ACN, got lots of promises including something from both Domans. Carl will come through but Dave is still to be proven, he's been "promising" for two years.

Finally we hunted our tables and the dinner was on. Chape Condit introduced the 1958 President, Fred Pommer of Connecticut; the new Vice-President, Earl Buchman of Ohio; the old faithful Secretary and Treasurer Stan Wilkinson (He should have said The Wilkinsons!) and the new Advisors. Telegrams of greeting came from Miles Amick and Cannon Ball Baker, neither of whom were able to attend this year. A letter from Cliff Boram was read, Cliff is now in Hawaii but will surely be on hand next year. Doggone! I forgot to read the Mickle wire.

The dinner, as always, was fine and well served. That hotel does a fine job of timing on their serving, everyone seems to be served at once. I even found that my beef was cooked exactly as I like it. I thought I was probably a VIP or something until Dorothy deflated me by saying she ordered it that way. About the time we were digging into the dessert (What was it? Frozen Alaska?) the Best in Show award was announced as going to the magnificent Series 137 of Carl Fregonese of New Jersey. I never want to be a Judge, usually it is a matter of trying to find a presentable car from a field full of clunkers or the still worse job of deciding from a collection of beauties, it surely was the latter problem this time. The Fregonese car was a knockout in anybody's league but it was in mighty fast company. Again, I'm glad I didn't have to choose. The prize this year was a lovely copper tray built around an interesting Franklin tile. This presentation was followed by the announcement of the Class ribbons and then President-Elect Pommer presented a similar tray (which had not actually arrived) to retiring President Condit in recognition of his two busy years guiding the destinies of the Club. Then the speaker was introduced, Mr. Frank Leyerle, one time Service Manager and for many years with the Company. Mr. Leyerle gave us a talk on his experiences with the Company, interspersed with many humorous stories and ending with a serious commentary on the present. As usual it is impossible to print this speech in the limited pages of ACN. You will have to attend the Trek if you do not want to miss the many fine talks that have been given at the banquets.

During the late afternoon Mr. Erwin Brown, an old Franklin company man had joined the Club, he was quite proud of his status as "Junior", the newest member of the Club, until Chape announced that Mr. Leyerle had just joined. Brownie, you have learned the hard way that "Fame is fleeting".

After the dinner was formally ended the usual groups stayed on and on, talking this one over, avowing their determination to attend in 1958, all the usual business of a reluctant breakup. The customary small groups at breakfast next morning, a few had departed early but many seemed to hate to actually start for home. When we left there were two Franklins still in the garage. It had ended. The Fifth Trek comin' up!

—AHA

Don Kitchin on his way

Mr. and Mrs. A. H. Amick, Mr. Ronald M. Andrew, Dr. Leonard Aquilino, Mr. Leonard Aquilino, Jr., Mr. and Mrs. Kenneth F. Barton, Mr. Randy Baumgardner, Mr. David K. Bausch, Miss Edna Belsner, Dr. Frank R. Boyer, Dr. George S. Boyer, Mrs. Caroline Boyer, Miss Nan Boyer, Miss Susan Boyer, Miss Wendy Boyer, Mr. and Mrs. Erwin Brown, Mr. Earl Buchman, Mr. John N. Cain, Mr. John E. Carberry, Mr. Howard Carey, Mr. and Mrs. Ernest E. Clark, Mr. W. Chapin Condit, Mr. William Condit, Mr. Frederick C. Courteon, Mr. Henry C. Courten, Mr. Elmer L. Craig, Miss Juanita Craig, Mr. Rollin S. Craig, Mr. James H. Davis, Mr. and Mrs. Charles Denman, Mr. Alan Q. Dickson, Mr. John Dollar, Mr. and Mrs. Carl Doman, Mr. David Doman, Mr. Raymond Driver, Mr. Gus Elliott, Miss Daisy R. Foster, Mr. and Mrs. John C. Foster, Mr. Carl Fregonese, Mr. Arnold Friedenrich, Mr. Karl W. Feather, Mr. Howard Franklin, Miss Georgianna L. Gewand, Mr. and Mrs. William G. Gewand, Mr. and Mrs. Ernest Gunther, Mr. Francis E. Gunther, Mr. Richard T. Hall, Mr. Frank H. Ham, Mr. and Mrs.

Harry M. Heiger, Mrs. Francis High, Miss Violet A. Hosler, Mr. Gordon H. Howard, Mr. and Mrs. L. E. Humphrey, Mr. Harold M. Jenkins, Mr. Godwin G. Johnson, Mr. Raymond M. Keeler, Mr. Robert R. Keeler, Mr. and Mrs. Kenneth W. M. Kern, Mr. Neal Kissel, Mr. Donald W. Kitchin, Jr., Miss Josephine C. Lewinsohn Miss M. Helen Lewinsohn, Mrs. Richard Lewinsohn, Dr. and Mrs. Walter H. Lindsey, Mr. and Mrs. John Lucchesi, Mr. George Macauley, Mr. Henry D. Manwell, Mr. Mihran S. Melkonian, Mr. W. Fenton Meredith, Mr. George Metzger, Mr. William H. Miller, Mr. Harry M. Moore, Mr. William Morgan. Miss Joan Murphy, Mr. George Newman, Mr. and Mrs. Frank B. Ober, Jr., Mr. and Mrs. Fredrick J. Pommer, Mr. and Mrs. Willard J. Prentice, Mr. Warren Prentice, Miss Lynn Prentice, Mr. and Mrs. Nelson P. Reynolds, Mr. and Mrs. Robert P. Ryan, Mr. and Mrs. Charles R. Smith, Sr., Mr. Charles R. Smith. Jr., Mr. and Mrs. Robert Stockwell, Miss Virginia E. K. Thompson, Mr. and Mrs. William A. Thompson, Mr. and Mrs. John Tyson, Mr. Thomas Volk, Mr. and Mrs. Albert L. Walker, Mr, and Mrs. R. L. Weeden. Mr. Richard Wells, Mr. and Mrs. Stanley D. Wilkinson, Jr., Mr. and Mrs. Charles R. Woods, Mr. and Mrs. Richard N. Wirght, Mr. James A. Zimmer.

Guests—Miss Gladys Bliss, Mr. John L. Burns, Mrs. Clayton Carris Mr. and Mrs. Frank Leyerle, Miss Stella Tague.

AWARDS

Best in Show: Carl Fregonese, 1929 Touring

1902 - 1916	
1. John Tyson	1905 Light Tonneau
2. George Boyer	1914 Touring
1917 - 1925	
1. Charles Smith, Jr.	1923 Sedan
2. Nelson Reynolds	1918 Clover Leaf Roadster
1926 - 1934	
1. Charles Smith, Sr.	1931 Convertible
2. John Lucchesi	1932 Sedan

ORIGINAL FRANKLIN TREK

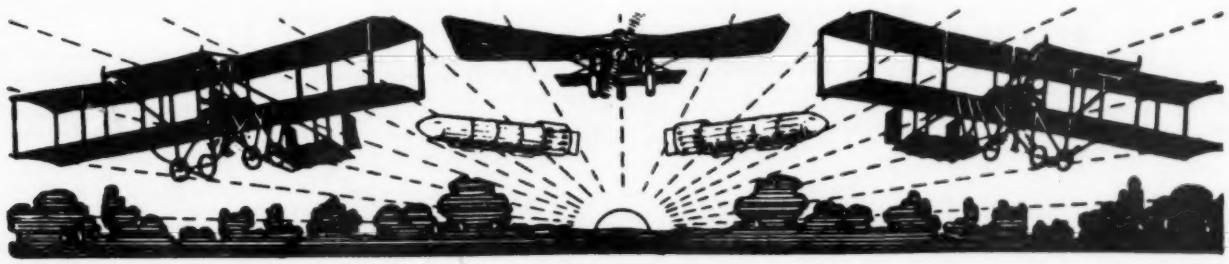
Run Planned to Demonstrate Reliability of Machine.

A trip of 3,000 to 3,500 miles through 11 states and more than 50 cities is being made by a Franklin six-cylinder motor-car of 42 horse-power. C. S. ("Clean Score") Carris is guiding the car on its journey, and has with him three other men from the automobile factory of the H. H. Franklin Manufacturing Company.

The start was made at the factory at Syracuse Monday and the run will be to Boston on the east, Baltimore on the south and St. Louis and Chicago on the west. All Franklin branches, with the exception of that at San Francisco, will be visited, and the car will reach them in the following order: Albany, Boston, New York, Baltimore, Pittsburg, Cincinnati, St. Louis, Chicago, Cleveland, Buffalo, Rochester and Syracuse.

"The Franklin Trek," as the trip is designated, is a special touring demonstration. The run is planned to demonstrate the reliability of the Franklin, its freedom from tire trouble and the general "roadability" of the motor-car on tour.

This undated clipping, from an unidentified newspaper was found by the Editor while rummaging through an old desk. The Editor and his Father rode this car on one leg of the run back in 1910. Our annual gathering at Syracuse drew its name from this run of almost fifty ears ago.



Nobody Had to Walk

Mrs. Boyer, Senior, her sister, both Docs, the three girls and Dave Bausch made quite a contingent from Allentown. Frank is getting old, his shirts were a disappointment after last year.

The John Carl Fosters with the irrepressible Daisy rolled in frim York.

Harry Moore from Turtle Creek turned up for the fourth time in his well known Pirate, alone this time. Wonder where the boy was.

The L. E. Humphreys from Meadville and the Kenneth Kerns from Coopersburg both arrived in mighty good looking sedans, a 12B and a 153 I think. Oh, yes, Dr. and Mrs. Walter Lindsey from Perkasie helped the Pennsylvania score, seems to me they arrived without a Franklin.

Then the old Pennsylvania standbys the Stan Wilkinsons, the Nelson Reynolds and Don Kitchin from Kimberton. Don, as usual, came through with some mighty nice pictures. Don't think ACN would make it without Don and George Boyer.

The John Tysons from Roversford brought along that little honey of a green, rear entrance cross engine. I saw this wagon before they got it, it was a real mess. Congratulations, John, for some good work.

That is a pretty sound representation for Pennsylvania but at this point the editor is looking over my shoulder and insisting on doing some bragging about Maryland. It seems the Free State has twenty two members and sent sixteen people to the Trek. The Editor and Mrs. Amick, with NO Franklin, what's he bragging about? Karl Feather from Baltimore, last year it was rumored that Karl was trying to get the Moore Pirate . . . Hang onto it, Harry! Charley Smith, Junior with Miss Frances High in a 1923, we imagine that will read differently next year! Oh, yes, the Cabin John Smittys, Mrs. Smith wanted to go on to Milwaukee, Charley didn't fancy the idea so he "compromised", we understand they had a nice time in Milwaukee.

Mr. and Mrs. Willard Prentice, Miss Lynn and Warren were on hand. It seems to me that the Prentice tribe have been members from about the very beginning of the Club. Among Maryland newcomers, to the Trek that is, are the Bill Thompsons from Baltimore with the charming Virginia E. K. . . . wonder what all that stands for? And don't forget the Obers, Mrs. and Mr. Frank Ober from Hope Hollow Farm with a most

Nobody . . .

The 10c of Charles Smith Jr.

Kern's '31

beautiful Airman are actually brand new to the Trek, but they seemed to have some sort of drag for their gorgeous big Airman was parked on a grease rack with all sorts of impressive big girders protecting it from those wild cross engine pilots. From down in Virginia came Godwin Johnson of Staunton, this was his first venture on a Trek. Think he brought Raymond Driver with him. This bird Johnson will talk your ear off if the subject is Franklin, think he'll have one with him in '58.

Syracuse had a pretty fair contingent, including Leonard Aquilino and his Father, both first timers. The Syracuse oldtimers included Chape and Bill Condit, James Zimmer and the Weedens. Also a few more that I think are newcomers, Howard Carey and the Harry Heigers. I note that Gus Elliott is listed from here, thought he lived in Schenectady. By the way Dick Wells brought Miss Dolores McCabe to see the animals, as this is written it is Mrs. Richard Wells! Cupid is doin' alright! This Spring it was Miles Amick, now Dick and in a month or two Cabin John Smitty, Jr. will have walked the plank.

Howard Franklin from Newark was very much on deck as usual; the Gewand tribe from Buffalo, it seems to me that Miss Georgianna told me she was taking off for Russia and dozens of other countries next year; old faithful Dick Hall and the Gunthers came in from Massachusetts. Frank Ham drove in from Dixfield, Maine . . . . wonder if that is farther than Oconomowoc? Among the Freshmen were the Bob Stockwells from Massachusetts, they are working on a Torpedo Phaeton, understand its the same year and type as the "Countess". Guess AH will have to get over his snooty exclusiveness with the "only" Torpedo.

Gordon Howard came up with Ronnie Andrew and George Macauley, Gordon seemed to have some "outside interests" this year. More "Sophomores and Seniors" included the Craigs, Ray Keeler with his brother Bob from Ridgefield, Connecticut, Macy Jenkins, Bill Miller, George Metzger, Alan Dickson and the new VP, Earl Buchman who soloed in the 1909 H. And for the first time, Charley Woods of Wooddale.

Did you notice the funny business about the awards? Best in Show and the presentation to the lame duck President were very attractive copper trays with a tile base showing an early cross engine. The actual awards were delayed in shipment so a borrowed one was "presented" with whispered instructions to turn it back in!!

A mighty nice affair for the fourth time, so we hope we will be seeing all of you come August 15 and 16 next year. Next one will be the Fifth Trek, sounds quite mature. We expect that the Committee will go all out to give us a memorable affair next time. The same Syracuse team will call the tune again in Fifty-Eight, so says Fred Pommer. —Laura Vincit

A '17 Cloverleaf, Carl Foster up.

The FRAYER MILLER by Fred Moskovics

About 1903, I met Mr. Oscar Lear, who was a prominent automobile dealer in Columbus, Ohio, and he outlined to me his plan to back a company to build an air-cooled car called the Frayer-Miller.

Lee Frayer was a crack engineer, a graduate of Ohio State, and Miller was a top mechanic. This was a forced-air-cooled car, the first I had ever seen. Columbus, Ohio had had several experimental air-cooled cars running, but not with air forced over the cylinders.

The car interested me extremely because of the blower and the fact that it apparently could keep completely cool, so I bought one which I think was delivered in early 1905. That year, Lee Frayer and I entered a six-day-and-night automobile race, running from Sea Bright to Sea Girt, New Jersey. The idea was to run non-stop as far as you could. We covered a total of 3202 miles in 148 hours and actually had a non-stop record of 1874 miles, which was considered quite phenomenal in those days. We won the race by a considerable margin.

It was then decided to build and enter a team of Frayer-Miller cars in the Vanderbilt Cup Race in 1906. Lee Frayer designed the cars, which were very novel in those days in that the chassis was probably the nearest thing to a low streamlined car in existence. It was a 4-cylinder with 7¼" bore and 4¾" stroke. Transmission was quite novel. It was designed by Belden and was substantially like a friction drive except that it utilized pins and rollers instead of friction contact. I brought this transmission into the picture. One of the reasons was that it helped to defray the cost of the car.

I might add the cars performed quite well. They had speeds of well over 85 miles per hour, which was tremendous in those days, but were subject to the usual little defects, including tearing up blowers. In the Vanderbilt Elimination Race, one blower swallowed a chicken, so the cars did not actually qualify. A young Columbus boy of sixteen received his first introduction to racing as a mechanic with this crew . . . Eddie Rickenbacker.

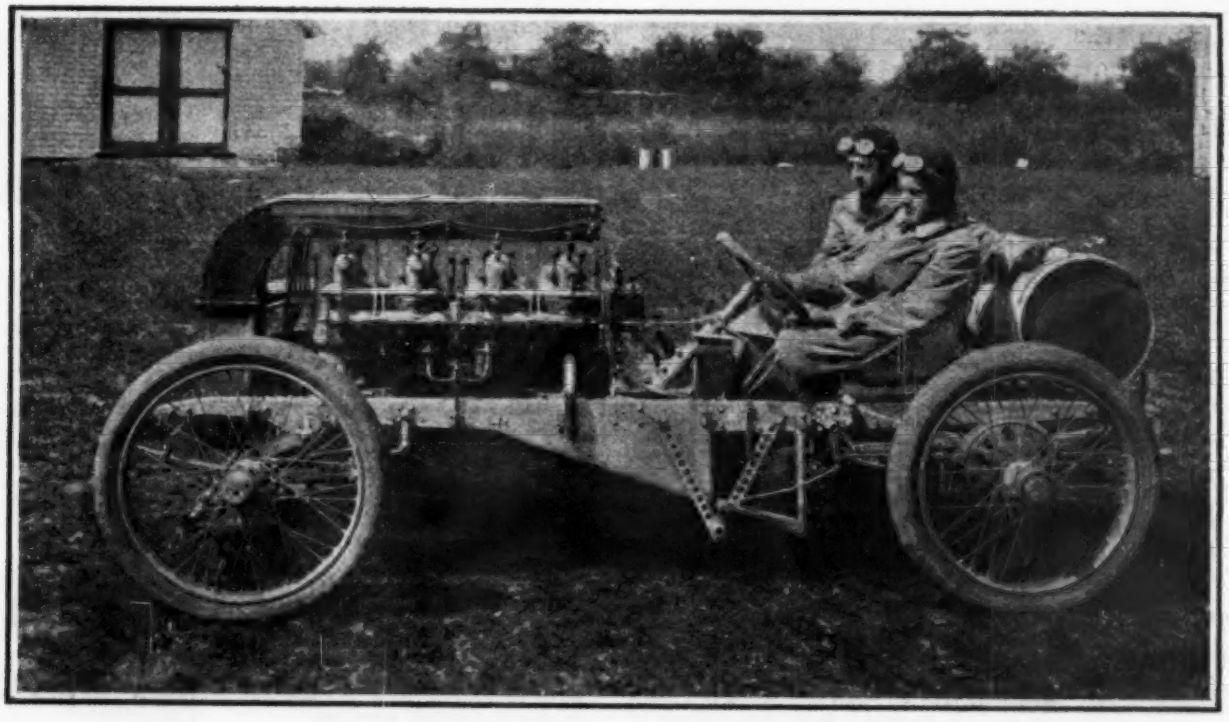
About that time, I took the agency in New York for the Frayer-Miller. They had by then developed a 6-cylinder car in which the cooling was extremely efficient. As a matter of facts, Harry Knepper driving one of these cars won the Automobile Club of America Economy Cup in 1907. The car also performed well in several 24-hour races. There really never was any trouble about the cooling.

I think it might be well to call attention to the fact that these cars were built in a factory that was in the heart of Columbus and did not have over 25,000 sq. ft. of floor space —yet they built the entire car there except bodies.

I always thought Frayer deserved a great deal of credit because I think he was the first person to adapt a blower to an air-cooled engine. Some of the little details that I can remember on the cylinders of the Vanderbilt Cup cars are that we fly-cut the cylinders with a light tool cut and the pistons, which were of cast iron, were draw-filed to get a close finish. We then lapped the pistons and cylinders together before putting in the rings.

To show you how low this car was, our feet, fitted in stirrups were actually about five inches from the ground and any time a tire went (remember, we did not have balloon tires in those days!) our heels were perilously close to the ground, but it did have very low center of gravity, and the cars handled very well indeed. I was to have driven one of the cars, but my then fiancee—who is now my wife of 50 years—objected. I did work the cars in, and did not withdraw until the last moment.

We sold quite a number of the cars in the New York area and they performed very satisfactorily. The company, for the usual reasons of small enterprises, went out of business in about 1912, but it did mark a real milestone in engineering and I am glad of this opportunity to pay tribute to one of the really unsung heroes of the pioneer days of the industry—Lee Frayer.



FRAYER-MILLER 1906 Vanderbilt Elimination racer. Driven by Frank Lowell, the mechanic is unidentified.

More about FRAYER MILLER

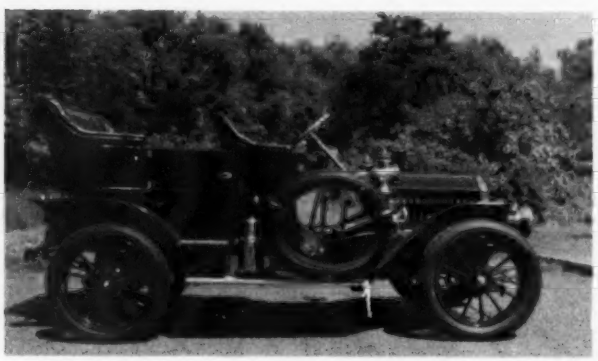
Through the kindness of Mr. Van Wyck Hewlett of Grumman Aircraft and members David T. Davis and Ronald M. Andrew we have gathered in a bit of more detailed information on Frayer-Miller cars to supplement Mr. Moskovics' story of the car and his own participation in its short history. Mr. Moskovics says none of the cars qualified in the Vanderbilt Elimination Trials, Mr. Hewlett says one was picked for the American Team, knowing nothing of this ourselves we will leave it there. What follows is somewhat combined and rewritten from all of this available material.

In 1903 Frayer-Miller, working with Oscar Lea in Columbus, Ohio, built an air cooled engine with horizontal cylinders measuring 4-1/16 x 4 that were machined on the exterior. The barrels had corrugated copper* cooling fins forced into these walls, which were 3/16 inches thick. These fins were of very thin copper 2 inches deep with tapering drawn flanges to nest together when in place. An 18 inch diameter fan was placed at the front end of the crankshaft and deflecting plates inside of the hood guided the air blast partly around the copper flanges, though the air was not closely confined nor used to the best advantage it was regarded as successful. About 100 engines were built in 1903.

Early in 1904 these builders advanced to a 4 cylinder engine and became aware of the importance of cooling projections that were integral with the cylinder barrel. The first Frayer-Miller with such projections was on a 4-1/16 x 5 engine having vertical cylinders and surrounded by a casing with the air blast conducted to the tops of the cylinders and forced down inside the casing to bottom exit. These cooling projections were integral, being 1/8" in diameter by 1/4" long, having an air blast supplied by an 18" Sturtevant blower and later their own fan. There were 32 rows with 13 pins to a row. For 1905 they built a car powered with what appears to be the above 4 cylinder engine.

The 1906 season saw the company continue their 4 cylinder car and introduce a 6 cylinder, both having generally the same chassis details. Although the 4 had 100" wheelbase, the 6 had 109", with the brakes the same on both models, being 11½" diameter x 2" face, so also was the 12½" diameter, 12½ degree leather faced aluminum cone clutch. Both 4 and 6 cylinder were basicly the same with cylinder castings having integral pins and narrow disc shaped combustion chambers, with valves carried in cages bolted to both sides of the cylinder head. The valves were operated by means of push rods and bell cranks.

For 1907, this company made very little change, the most notable of which was the introduction of a large four of 5½ x 5¼ bore and stroke, rated at 50 H. P., while the older, four was retained with an increase in stroke of ⅛ inch. This same year they built a 3-ton truck, known as Type A. This used the same engine as the passenger models. but under the seat. It had semi-platform springs and was driven by double side chains.



Several views of the splendid 1906 FRAYER-MILLER of Mr. Walter Levino of New York. Courtesy of Mr. Walter Lavino through Austin Clark

Mr. Hewlet writes: "In 1906 Frayer-Miller entered and started three cars in the Vanderbilt Cup Elimination Trials and after the trials, one was picked as a member of the five car team representing this country in the main race. The engine measured 7¼ x 6 bore and stroke, had an expanding clutch, a 2 speed transmission and a 98 inch wheelbase. From what I saw during the race. it was not very fast for its fastest lap was 36 minutes for 29 ¾ miles, about 10 minutes slower than the leading cars."

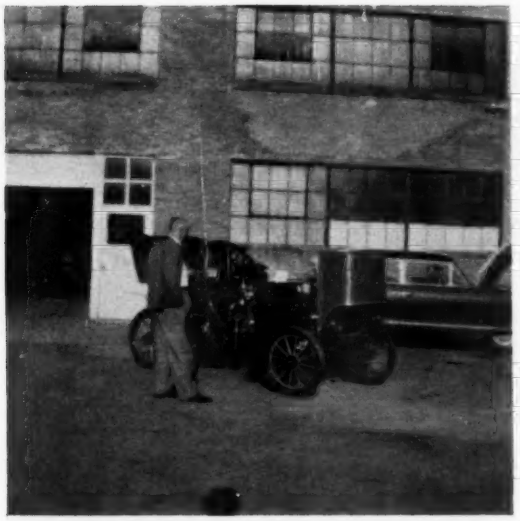
SCIENTIFIC AMERICAN at that time stated:

"The most novel and distinctively American type of car is the elimination trial was the Frayer-Miller. Three of these machines were entered and all started in the race. These cars are remarkable from the fact that their engines, which have the same bore and stroke as those in the Locomobile racer, viz., 7¼ x 6 inches, are cooled entirely by air, which is forced by a powerful gear driven blower, located in front of the engine, through a casing extending over the tops of the cylinders and connecting with aluminum air jackets. That this method of cooling has been applied successfully to so large an engine speaks volumes for American ingenuity. These machines were built by the Oscar Lear Automobile Company with the idea of demonstrating to a finish the air cooled principle. They are without exception the largest air cooled cars ever constructed. In order to make these cars as light as possible, their designer, Mr. L. A. Frayer, built them with tubular axles and wire wheels (wooden wheels substituted after wire wheel failure). Drive of all three cars is by means of a propeller shaft and live rear axle of the floating type. in which the weight is all carried upon the tubular outer axle. The wheels are fitted with both internal and external band brakes. The engines of these cars are made up of four separate cylinders, having the inlet and exhaust valves placed horizontally in the cylinder heads and on opposite sides of the cylinders. Ignition is by batteries and coils.

The transmission is of a new type known as the Belden change speed gear. This type of transmission consists of a series of roller bevel pinions that engage circular sets of pins on the driven member. The chief advantage is that a direct drive through one set of bevels is had on each speed. Consequently there is no loss of power in driving through a number of gears. The transmission and wheels of these cars are mounted on ball bearings."

*Is this first known use of copper fins?—Ed.

GLIMPSES by DON KITCHEN



the proposed Sergeant at Arms, Bob Ryan.

Bob Stockwell, Carl Doman, John Burns and Albert Walker,

That Foster gang, in order of rank, Daisy, Mary and John

VIP—Miss Wendy Boyer,

ALBERT MECHAM

We are saddened to learn of the passing of Member Albert Mecham of Illinois in his 71st year. Mr. Mecham had been in very bad health for the past few years but his interest in the old cars never lagged. He managed to keep up quite a correspondence on the subject. Mr. Mecham was a photographer of note.

As a gentle tribute to him we are showing one of his prints in this issue. While the car is not one of ours the picture shows the artistry of Albert Mecham in capturing five widely differing modes of travel and the ever new and wonderful world of a small boy.

Mr. McCauley

GEORGE MACAULEY

Mr. George Macauley, the father of Marjorie Andrew and the grandfather of Ronnie, lost his life in a highway accident on a foggy night in September. George Macauley was possibly our oldest and most certainly was one of our most loved members. He was well known to all those who attended any of the Treks. Not only were we all fond of him but we were a little bit proud of him too, a slight man physically he never seemed to ask odds from Man or Nature. We are cheered to learn that Marjorie is again home after a long seige in the hospital.

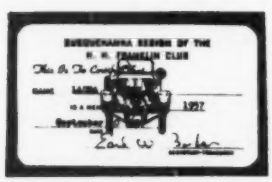
Comments and Letters

The GAZETTE of the Veteran Car Club of Great Britain, to whom must go the major credit for the whole antique car sport, is a most interesting publication. Using a form quite different from American club magazines, it is excellently printed and devotes much of its space to the doings of its Sections, similar to our Regions, and the stories of individuals and their cars. We congratulate Editor Dennis Field on the excellent job he is doing.

THE CLASSIC CAR is an exceptionally good magazine covering a specialized and interesting field. All issues we have seen are consistently fine but perhaps we are a bit prejudiced to the efforts of our members for we particularly enjoyed an issue of some time ago, written and edited by HHFC member William R. Gibson, devoted entirely to the Marmon Sixteen. We also like their editorial approach to the subject of Classic Cars.

To blame anything on Cupid is nearly as bad as to insult the FLAG or to speak slightingly of MOTHER. It's the truth, nevertheless, the distractions of a wedding coupled with a procrastinating engraver made the last issue of this magazine appallingly late. But we think we'll be forgiven. It was almost Club business anyway. The Bride is a member, the Groom is a Past President, the Best Man and two of the ushers are members, so are the Parents of the Groom and a handful of the guests.

The Club jewelry put out by member Athol Odell is just as good looking as it was last year and makes just as nice a gift. The car emblem, backed with felt, makes a mighty nice conversation piece for your office desk or coffee table at home. Of course you already have them for your cars. The Treasurer will see that you have them by Christmas . . . if you do not wait too long.



We hope, in the near future, to be able to welcome three new Regions to the Club. Two are under consideration in the East and we understand much progress has been made toward organizing one in the Mid West. How about getting busy out there on the West Coast? We surely need one out there and with their big membership and wonderful weather it could be a mighty fine outfit. All you need is a couple of good "spark plugs" to get it going. How about Jack Wadsworth, or Walter Fife, or Judge Tibbitts or, better, all of them lining up a few of the members and getting something started?

Nineteen Fifty Seven membership is nicely past the five hundred mark. If we would go out and scrounge up a couple of dozen more before time for the New Year whistles it would make a most satisfactory year for HHFC. These last minute people will get '58 too, you know. Well?

FRONT COVER—On the way to the Isle.
George Boyer photo

INSIDE FRONT—The 1929 of Carl Fregonese takes Best in Show.
George Boyer photo

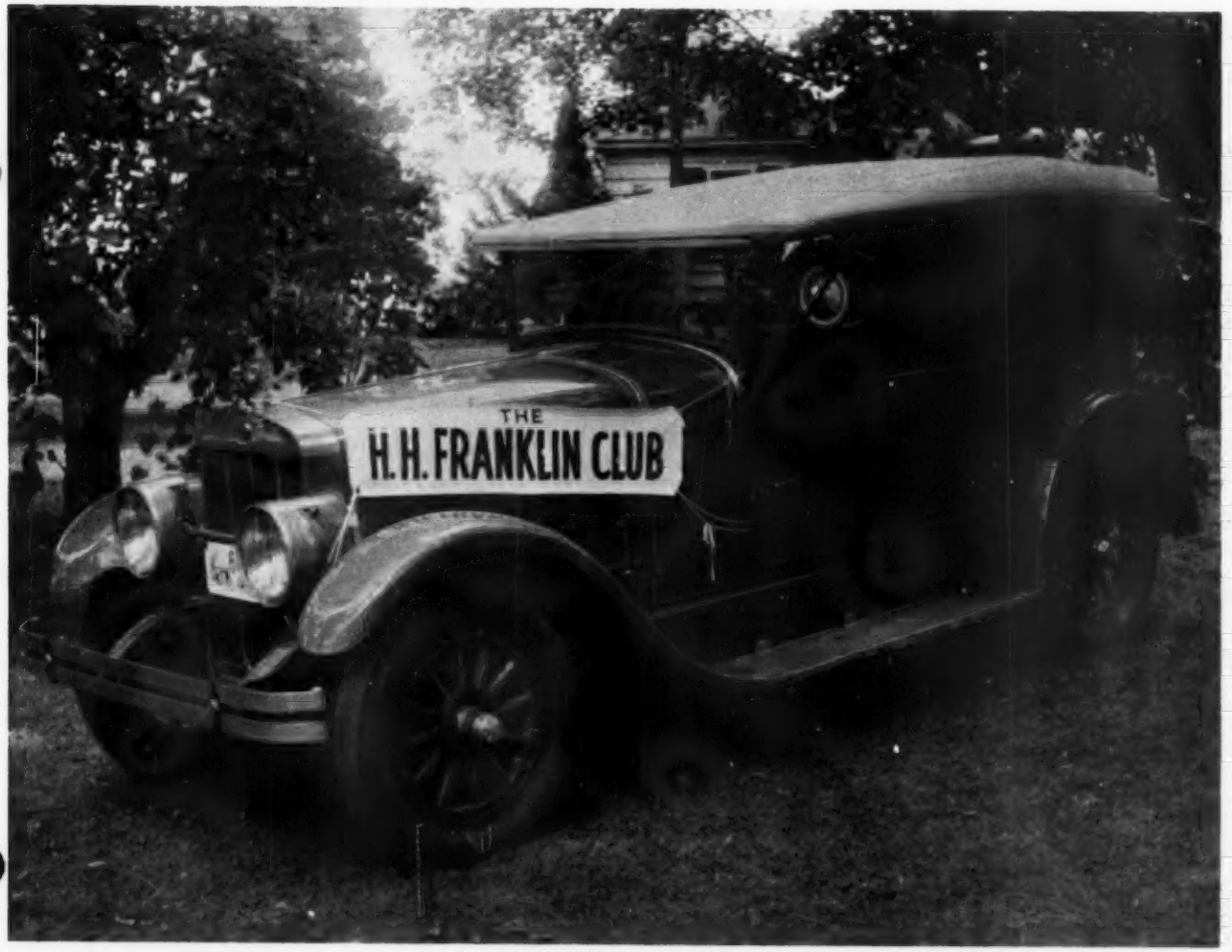
INSIDE REAR—Hitching a ride . . . Mrs. Mesham's own title.

BACK COVER—Sold' Courtesy Universal Oil Products Company.

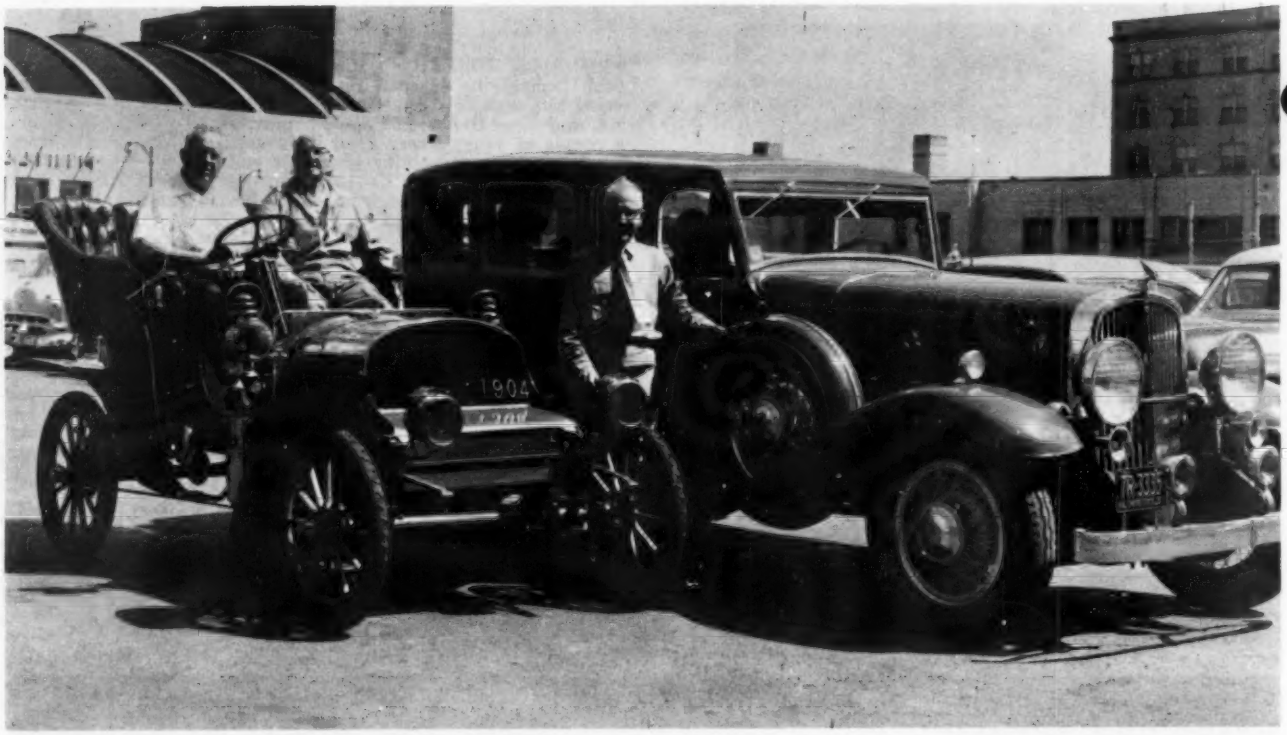
FREDRICK JOSEPH POMMER, as President, will lead our Club through its seventh year. Fred, a bit over thirty three years old, was born in New Haven, Connecticut. His parents, Mr. and Mrs. Henry F. Pommer, moved to East Haven within a couple of years where Fred lived until the last year or two. We know little or nothing about his early boyhood except that he went through Union Grammar School and East Haven High School, then on to Yale from which he emerged in 1945 with the degree of Bachelor of Engineering. He almost immediately started work for Farrel-Birmingham Company at Ansonia and has never left them. This outfit builds gigantic hydraulic presses and Fred is presently in charge of design and engineering of these Farrel presses.

Fred and Frances Reyan of Shelton, Connecticut were married in 1953. Frances, well known to all Trekkers, was, and still is, connected with the same Company. The Pommers have never missed a Trek and have also taken their well known phaeton on four Glidden Tours. In fact the Pommers are so inseperable from their car that we will not even separate them in this little study. In addition to our own Club they belong to VMCCA, AACA and the Connecticut Historical Automobile Society. The Henry Pommers can boast of two automobile club Presidents in the family for Fred's brother, William H. Pommer is President of the Connecticut Society.

Both the Connecticut Society and our own Franklin Club are to be congratulated on choosing Pommers for the coming year.



The Presidential Car



John Tyson and John Burns seated, John Lucchesi standing. Where the heck were John Foster and John Dollar?

Onondaga Historical Association

YOU DON'T HAVE TO LOOK LIKE THE EDITOR
. . . See JOE the TAILOR (Adv)

Reading as the Chinese were wont to do, right to left, we have President Condit, Vice-President Courten and Editor Amick.

Onondaga Historical Association

John Burns Column

Technical Advisor John Burns will attempt to answer all questions of a technical character that are submitted to him by members. There is no charge for this service but you are expected to submit copies of the correspondence to the Editorial Office for use of this column. Write direct to Mr. Burns at 225 Reed Avenue in Syracuse and enclose a stamped and addressed envelope. Information of a technical nature from other sources is occasionally included in this column.

Mr. Burns has left for a visit on the West Coast until about March. He has arranged for the forwarding of his mail so he will continue to be available for consulation using the same old Syracuse address.

GASOLINE

A. H. Amick, Cumberland, Maryland, asks: I am informed that the new AMOCO 160 octane would be detrimental to our 1905 aluminum piston engine. How about it?

Answer by Mr. Condit:

"AMOCO was and is a fine fuel. Octane rating actually has nothing whatsoever to do with burning valves, pistons or other parts unless it is too low and causes knocking. The octane number of gasoline has nothing to do with its burning temperature or any other quality at all. It seems to be the best for your purposes of anything available."

LUBRICATION MODIFICATION

Johnathon C. Tibbitts of California sent in the following account of some changes he made in a Series 12 engine. This account is followed by comments from Mr. Burns:

"I worked into it (Series 12) a Series 145 lubrication system. I had burned out an occasional rod bearing and realized that with the increased speeds the lubrication system was inadequate. I noted the Series 145 and later stood very hard driving. So after much messing around I made this conversion and have had no bearing trouble since. JCT."

"Series 11-12 were guilty of developing cracks in the main bearing supports and that in turn starved the bearing of the web in which it occurred. Well to be honest with you I think it would be easier (than adapting the Series 14 system) to correct the trouble that exists that causes a rod bearing to go out. No oil pressure is probably due to a crack in the web that supports the main bearing and also this web is drilled to send oil from the pump pipe outside. (A long drilled hole). My idea would be to drill a large hole and force in a tube full length and then tap inside of this tube (on the outside) with an internal tap to connect pipe to this long tube. . . JLB."

CYLINDER HEADS

Mr. Athol Odell, our Club jeweler from Galesburg, Illinois, wrote Mr. Burns to learn if Series 194 cylinder heads could be put on his Series 147 engine with the idea of taking advantage of the higher compression. Here is Mr. Burns' reply:

"_____regarding shifting Series 19 heads to Series 14 cylinder. I can see no reason why you can't. The 19 valve seats were of better material and stood up better. Of course the 19 rods being of steel and with Babbitt metal inserts would be better too. The Series 14 rods were aluminum and had sweat-in bearings. We discarded this rod in Series 16 for steel and replaceable inserts.

I agree that the Series 19 had a bit higher compression but it could be arrived at by a bit of piston head length above piston pin. I would put in pistons that are at least 1/16 inch longer from piston pin hole to top of piston. With modern gasoline you can get away with it, and it will give you better mileage. Be sure and see that the extreme top of cylinder is free of carbon so that added piston head length will not hit the carbon ridge. Use a chromium plated top ring in piston groove—with a minimu of .015 butt clearance. I like the Perfect Circle ring package. Watch your valve springs too—seet hat they are really up on return pressure at least 35-40 lbs. supporting weight.

Smooth head surfaces as well as gasket surfaces using a good cement when you assemble and pull up flange nuts evenly."

MECHANICAL OILER

Mr. Kenneth Mayes of Lemont, Pennsylvania, asked Mr. Burns for information on adjusting the mechanical oiler of his 1911 Model D. Mr. Mayes reports that he followed these instructions and is well pleased with the results:

Answer by Mr. Burns:

"Regarding the 1911 oil adjustment. If I recall it it was a Hancock and you used a screw driver and backed it out (the adjusting screws) to increase output. You can see results by looking in the window of the box like top. And when you had a sufficient amount you smoked a little. Take off a hand hole cover and size up the circle of oil in sump. If low it heats up, if too high it smoked. If it requires more start motor after sizing up the circle the present adjustment makes. (Don't forget to replace hand hole cover!). I am not too sure which way you go, I said go anticlockwise. Well put back cover, start up motor and run it at a not too low nor too fast for awhile and see results. It should build up if you go anticlockwise."

DRIVE CHAINS

In Issue 7 we stated as a restoration tip that the DIAMOND people could furnish a drive chain for the 1905 cross engine. The sample chain we borrowed did fit our sprockets. Member Ronald Andrew informs us that it will not fit his car. In view of Mr. Andrew's findings we suggest that a careful check be made before any chain is purchased for a cross engine. . . ED

VALVE TIMING

Mr. Richard Lamphere of Rutland, Vermont, asks for instructions on timing the valves of a Series 15 with particular reference to an engine whose compression was increased to 6.2.

Mr. Burns' reply:

"I am going to give you a bit of work for checking purposes. If you have an early intake opening, say ½ to ¾ inch before T.D.C. you will ping. If you have a T.D.C. or ¼" late you wont have as much if any with normal gas and you should pick up a bit of speed. Proceed thusly: Take off rocker caps on 1 and 6 cylinders. Turn engine over so that valves are closing and opening on #6. Now #1 is on its compression stroke; both valves free OK. Get a 0.031" feeler gauge and adjust it into #1 intake between top of valve and rocker, free. Now turn engine over to the point where #1 rocker is just taking hold of #1 valve. That is the opening. Note on fan where it is. If you are early like I said. it will ping a bit. But why not try premium fuel? If you don't want to spend the extra money, pull off front end and reset by taking off gear holding screws on cam shaft (loosening chain first) and then finding a combination of holes in gear and flange that will give you what I said; center or a bit late. After you are thru, reset valve to 0.008" and readjust chain to proper tension."

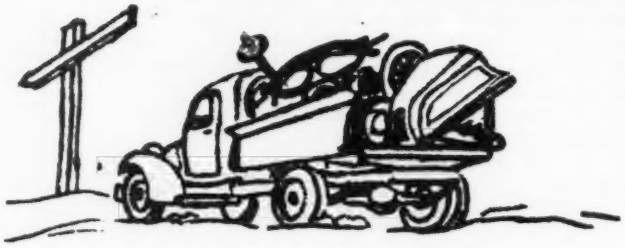
TWO SPEED AXLE

Mr. Thomas Hubbard of Arizona asks Mr. Burns for some help in adjusting the two speed rear axle of his V-12:

Reply by Mr. Burns:

". . . . we knew the engine in the V-12 when it was correctly serviced would give a good account of itself, no doubt your own service man got those two sets of ignition points synchronized, because a whole lot depends on them. I cannot account for the rod bearings being poured bearings, we did not send it out that way. . . . Getting around to the two speed rear axle, my experience with that component was limited but when you say you overhauled the whole system and it still "clunks", my first move would be to clean out the whole rear end, oil I mean, and if you can remember the type of lubrication you put in, say #80, then go to a heavier and vice versa if you started with a heavy one . . . of course I am assuming the rear hubs are drawn up tight on their tapers. In as much as you use the car on reasonably level country do as Carl says, anticipate your roads a nd leave it in the gear most desirable to use for that trip, that was the whole purpose of the two speed axle. Some sections got along without it, Cincinnati, Ohio, hills had to have a lower gear."

THE MARKET PLACE



Classified advertisements are free to members, subject to available space. Advertisements from non-members may be accepted, without charge, at the discretion of the Classified Editor. Illustrated advertisements may be accepted if accompanied by a clear glossy photograph and a check for $4.00.

Members are reminded that misrepresentation in advertisements may result in their being dropped from the Club rolls. They are further reminded that the publishing of their advertisements entails an obligation to answer all inquiries.

Henry C. Courten, Editor, Box 127, Bethpage, New York

LEADS

1905 Franklin hood hinges duplicated. Contact member John Tyson, R. D. #1, Box 334, Royersford, Penna., for more information.

1908 Franklin Model G barrel hood touring, near perfect, $2200. Paul F. Marut, 536 Liberty Blvd., Phillipsburg, N. J.

New and Used Series 9 through 16 parts. Cunningham and Koontz, 237-41 Read Street, Baltimore, Maryland.

Older parts (new). Mr. John F. Miller, 91 Murray Street, Meriden, Connecticut. Both above leads by John Lucchesi.

Franklin parts 1926-1933. Clean 1929 Roadster, $250.00. Large number of parts cars. Atlantic Auto and Truck, 19020 South Street, Los Angeles, California.

1929 Series 130 Convertible coupe in good condition. Seen in Waxahackaie, Texas. Both above leads from member James B. Beal of Coleman, Texas.

1924 Franklin Sedan, differential trouble but can be driven; door post bad. Engine said to be excellent. Rumored—$75. Located at Ameley, Pa., 3 miles west of Chambers on Lincoln Highway in Motor Court Motel.

1930 Franklin Sedan in New Cumberland, Pa. at Romero's. Supposedly can be driven—$95. Lead by Stan Wilkinson.

Franklin 7-Passenger, running needs roof and paint, $150. Fred Spink. R. D. 4, Onego, N. Y.

WANTED

Carburetor for 1905 or earlier cross engine Franklin or parts there of. Complete engine or parts. S. D. Wilkinson, 1826 Gregg St., Philadelphia, Pa. (15).

Pre-1913 Franklin, unrestored, but complete. Hank Courten, Box 127, Bethpage, New York.

Hood Ornament for 1932 Airman. Also want Issues #1 and #5 of ACN. Jack Wadsworth, 264 Pamela Road, Arcadia, California.

For Series 11 or 12—stone shield for "radiator," curved exhaust pipe which runs from exhaust manifold to gasoline heater. Mike Cannon, 3705 Fairfield St., Metairie, La.

For 1911 Model D—one or more cylinders. Kenneth F. Mayes, LeMont, Pa.

Trunk for 1931 Victoria Brougham. C. E. Edwards, 1140 Manhattan Beach Blvd., Manhattan Beach, California.

Two 650 x 19 tires and one rim; rear seat cushion for 1929 fordor Sedan. Paul L. Taplin, Trow Hill, Barre, Vermont.

Wire wheel for 6.50 x 20 tires, six lug; outside door handles and inside window cranks; four hub caps, owners manual for 1923 Franklin. Leonard Aquilino, 336 Hickok Ave., Syracuse, N. Y.

FOR SALE

PARTS AND MANUALS: Limited amount of parts Series 9 to 19. A few instruction manuals, Series 10, 12, 130, 135, 137, 16A, 18, 19B. Also parts catalogues for Series 10, 11, 12, 130, 135, 137, 14 and 18. John Lucchesi, 144-23—158th Street, Jamaica 34, New York.

Series 135-137 instruction book. $5.00. Mike Cannon, 3705 Fairfield St., Metairie, La.

1906 Model G Runabout. Serial No. 2654, partially restored. Charles E. Smith, 825 Glenwood Avenue, Baltimore 12, Maryland.

Will sell all but one of the following cars:—
1926 4-door, good body, excellent running, original interior.
1929 2-door Victoria, restorable or sell for parts.
1930 Sell for parts.
1932 Olympic 4-door. good condition. Franklin R. Smith, 256 Austin Drive, Decatur, Ga., BU 9-0484.

1930 Franklin motor and chassis, complete, disassembled for storage, $45.00. W. E. Ludwig, Route 23, Genoa, Illinois.

1932 Dietrich Sports Speedster, original owner, picture in Aug. '55 ACN. Very good condition. Must sell—only reason lack of space. $1,250. Emilie Wagner, 783 West 10th Street, Claremont, California.

1927 Sedan, good condition—$75.00—Gordon Smith, R. R. 3, Orillia, Ontaria, Canada.

I must reduce my Franklin collection to 4. Will sell 4. Write for description. Athol Odell, Galesburg, Illinois.

Many parts for Model 135. Howard Carey, 1355 Oak Street, Syracuse, N. Y.

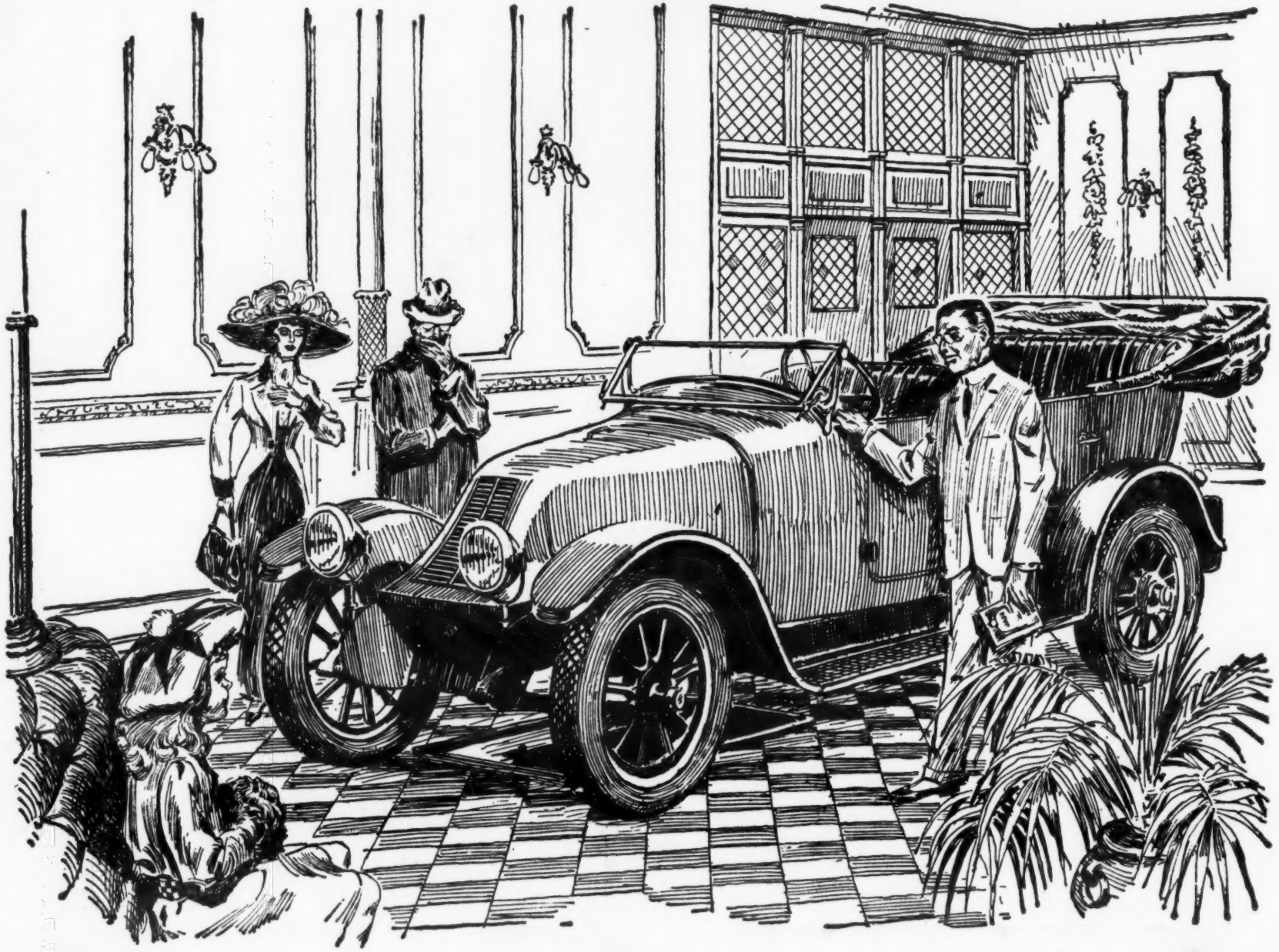
135 Sport Sedan—many spares, $600. Howard Carey, 1355 Oak Street, Syracuse, N. Y.

1926 or 1927 Touring, original paint, good running condition and tires. Frank E. Weatherby, RFD #1, South Acton, Massachusetts, Col. 3-4504.

Franklin Parts—A large supply of new and used parts mostly Series Nine and later. Ronald M. Andrew, 77 Grove Street, Lonsdale, Rhode Island.

1928 Convertible Sedan by Dietrich, 11,000 miles. Near perfect, except for canvas. Firm $850. Michael Mullen, 29 East Madison, Chicago 2, Illinois.

NOTE: A supplementary bulletin of the latest classified advertisements is put out at intervals. Send a stamped and self addressed envelope to Mr. Courten at the above address for the latest issue.

MEETING OF THE SUSQUEHANNA REGION

The Annual Meeting of the Susquehanna Region, for the election of officers and other business, will be held at Dornsife, Pennsylvania on January 18th, 1958. There will be a dinner at one o'clock and both dinner and meeting will be held at the lodge hall. They invite anyone interested in air cooled cars to attend by notifying Robert Reed, Selinsgrove, Pennsylvania, not later than January 10th.